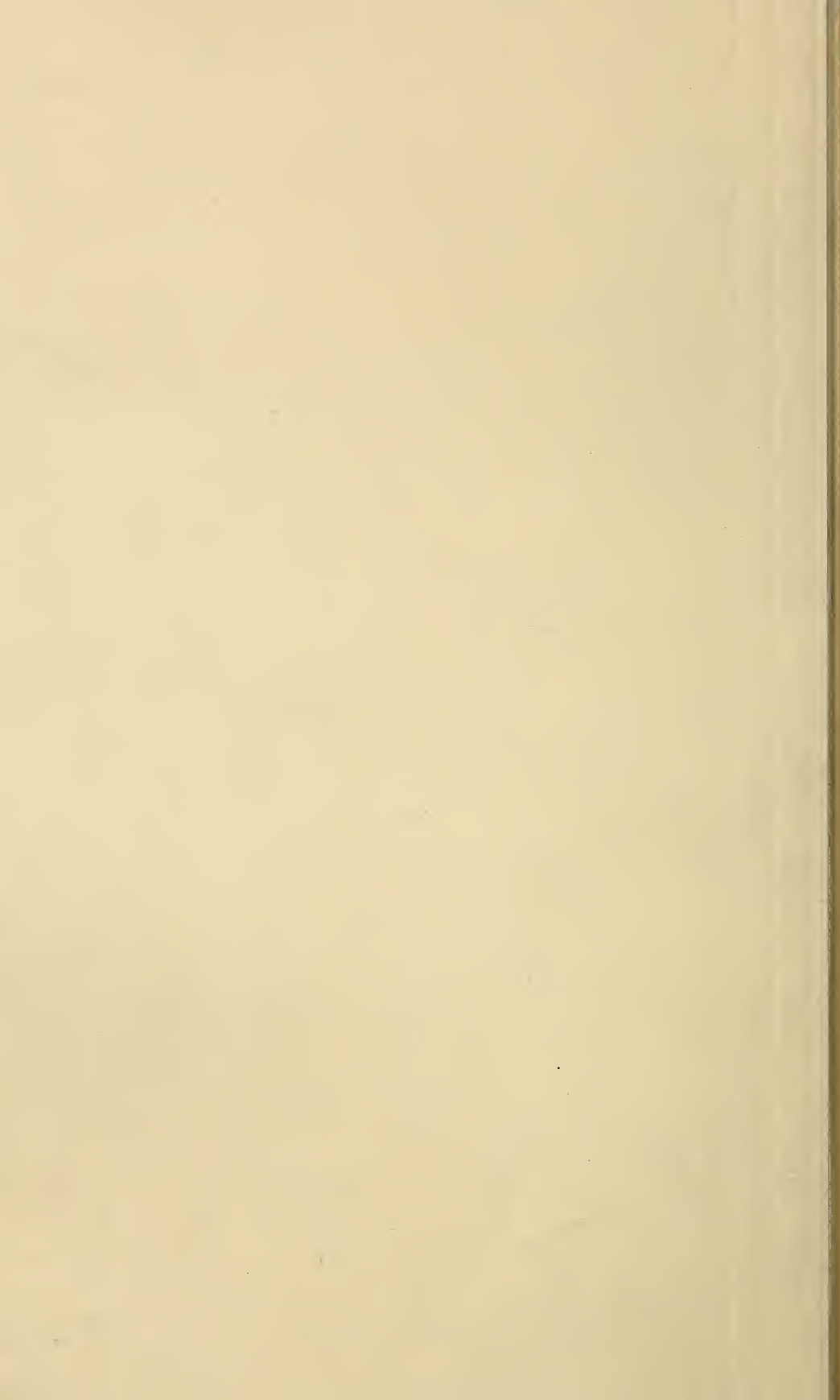


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A JOURNAL DEVOTED
 TO BEES
 AND HONEY
 AND HOME
 INTERESTS.

ILLUSTRATED
 SEMI-MONTHLY

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IN ADDITION to the advice given John Camm, p. 96, he might increase his surplus tenfold by allowing only one swarm instead of two from each colony.

EMPHATICALLY I indorse the advice, p. 98, to have a bee-space around all division-boards, followers, and dummies, unless you want them to remain permanently.

ONE POUND OF WAX comes from the capings of 80 lbs. extracted honey, says C. P. Dadant in *A. B. J.* But remember they don't extract till the close of the season.

THE LATEST LUBRICANT for making foundation in Germany is 1 part alcohol, 3 parts skim milk (some say whey). Alois Alfonsus says 10 per cent alcohol is enough.

I COULDN'T MAKE Craycraft's corn-husks work well in smoker. The favorite smoker fuel the past season "in this locality" was small chips gathered from the chip-yard, in dry weather.

SUN EXTRACTORS are painted white instead of black, outside and in, by L. A. Aspinwall. That's better for the wood; and if the wax is heated too much there's danger that propolis will melt and mix with it.—*Review.*

G. C. GREINER says, p. 86, that buckwheat doesn't show in supers till somewhat advanced. Right. And isn't that the general rule? I never expect to see any signs of the clover crop in the hive till ten days after the first clover bloom.

I DON'T SUPPOSE I'll get any lindens planted this year on the streets of Marengo; but bee-keepers who are not too lazy or too busy will do well to furnish trees of that kind free to intending planters. A linden a mile away will be as valuable as one right on your own place.

"THERE IS CERTAIN WORK," says Mrs. AxteLL, p. 92, "that must never be neglected, whether bees store honey or not." That doesn't agree with Prof. Cook, who speaks of little or no work being required in years of

failure. I'm on the woman's side. In a year of big yield, the most of the work would have to be done, even if I didn't get a pound of surplus.

J. H. CLEVINGER asks about N. Genn's wintering, p. 95 and you answer about mine. Probably Mr. Genn winters without bottom-board, or else has lath under sides and back. If in cellar, three thicknesses of lath at the sides with open front and back wouldn't be bad.

HOFFMAN FRAMES space the bottom-bars better than nails and things for E. Kretschmer, p. 97; but my Hoffmans vary more than I like at the bottom. What's the matter with putting a second nail within three inches of the bottom, friend Kretschmer, thus making it sure and exact?

MRS. AXTELL is right, p. 92, in thinking it's advantageous to have sections on early. Put 'em on too early, and the bees may spoil 'em. But I'd rather have 'em on three weeks too early than a day too late. About ten days before you think bees will store in them isn't a bad rule.

C. DAVENPORT thinks bee-keepers have done much themselves to lower the honey market by reporting large expected crops.—*American Bee Journal.* I know it's the practice of some of the large dealers to send out inquiries as to prospects, and, of course, this must be to help set price.

I WONDER whether the coming section-cleaner will use sandpaper, or run something in the line of a planer. In any case I suspect that the day of hand cleaning is about over. [That question has been revolving in my head also. Practice and not theory will have to come in and decide for us, I suspect.—Ed.]

I SECOND the nomination of Manager Secor as pure-food delegate—not merely for what he'd do, but for what would be done to him. He'd load up with good ideas and enthusiasm that would make his work for us more effective. Hurrah for Secor! [Yes, call out the word all along the line. Hip, hip, hurrah for Secor!—Ed.]

I SMILE at a SMILE of considerable extent when I read what A. I. Root said about his wife, p. 103. To any one who knows what a

thorough home-body Mrs. Root is, and how utterly devoted to the interests of her family, the idea of her needing to hear a "plea for the sacredness and sanctity of the home" is too funny.

HASTY, in *Review*, referring to the possibility that the mere presence of a new queen of gentle stock may soften cross bees, says: "May it not be that all bees immediately after requeening haul in their horns a bit, and feel as if home were hardly worth fighting for? Experiments with a cannibal queen given to gentle bees would solve that question."

THE *Review's* Reviewer half way thinks Eagerty's plan of spreading sections on grass in shade instead of wetting them "would be a handy and winning scheme sometimes." But say, Hasty, I'd dreadfully hate to wait till grass grows before making sections; and, besides, I can wet a box of 500 or 1000 in less time than you'd spread and gather up a hundred.

I RUBBED MY GLASSES, and read several times that California deliverance, p. 99, "*Resolved*, That the new Union should absorb the old." And it was from California that the strongest—yes, the bitterest—opposition to amalgamation came. They wouldn't hear to a wedding, and now they want to make a cannibal feast of the old Union? Wonderful climate that! [What is the odds, if "Barkis is willing"?] on both sides?—ED.]

STACHELHAUSEN says bees can't thin septum of foundation. L. L. Skaggs says he has 100 combs in which the bees have thinned the septum.—*Southland Queen*. [Our experience is emphatically that of Mr. Skaggs. I wonder if Mr. Stachelhausen has really tested this matter thoroughly by means of a micrometer measuring thousandths of an inch. If he has not, then I shall be forced to the conclusion that he has not gone into this matter as deeply as he might.—ED.]

WHAT'S ALL THIS RUMPUS about needing separators to come to the tops of sections so the sections won't be bulged? My separators have always fallen $\frac{1}{4}$ inch below upper surface of sections; and if there has been any bulging I never noticed it. [Do not overlook, doctor, the difference between plain sections and the old style. A slight bulging at the top, tolerable in one, would be intolerable in the other; that is, it seems to me it is safer to err on the safe side in the use of plain sections than to err on the other.—ED.]

C. P. DADANT has been doing some figuring in *A. B. J.*, and says his average net pay at producing extracted honey is \$7.00 per day. The trouble is to make a man understand you are consistent when you tell him that, and then advise him not to give up a steady job at \$2.00 a day and go into bee-keeping exclusively. [If prospective bee-keepers could read what you and Dadant have done, our ranks might be flooded. I suspect the only way we can reconcile the \$2.00-a-day steady job and the \$5.00 and \$7.00 a day is simply on the ground that the \$5.00 and \$7.00 averages are few and far between.—ED.]

PLAIN SECTION honey has been sold by the ton by J. E. Crane; but he uses slotted sections, then saws off the edge after they're filled. He has two saws just $1\frac{1}{8}$ in. apart, coming $\frac{1}{8}$ in. above saw-table, runs the four sides of section through, leaving edges clean and white, much neater than they could be made by hand scraping. He says honey is more attractive put up in this way, and sells more promptly, the "more promptly" in italics.

HOW IS IT, Mr. Editor, that you'll encourage that man Niver to say things about the T super to hurt my feelings, when you know how sensitive I am? Allee samee, those T supers have helped me to a nice little sum. [Admitted; but how do you know, doctor, that some other surplus arrangement might not have produced just as much honey, with less labor? Understand, I am not condemning the T super; but I "smoked" a big smile of satisfaction, even if Niver did "whack" at you over my shoulders.—ED.]

I INVENTED the smoker-hook, as nearly as I remember. So did several others. It's a thing that one thinks of as naturally as making something to hang up a broom. But it's very likely to be dropped after being tried, so it will continue to be invented by others in the future. [I wish, doctor, we could have a sort of picture-gallery, nicely indexed, of every thing under the sun that has been invented or thought of in bee-dom; then if by some means this gallery could find a lodgment in the head of every beginner, and old beginners, for that matter, why, there would be less inventing over again.—ED.]

YOU'RE MISTAKEN, Mr. Editor. I extracted enough honey for home use and to supply friends, and a good share of it was from new frames with nail spacers. The nail-heads projecting only $\frac{1}{4}$ inch, and being flat, they didn't catch in the wire cloth at all, somewhat to my surprise. A good many things that we know all about in theory turn out quite different in practice. [It was not *my* theory, but the *ipse dixit* of some one else who used them who raised the objection with regard to nails catching in the wire cloth of extractor-baskets. I will confess I never thought of the objection until it was put into my head. I hope it is no real objection.—ED.]

HOW IS IT about that matter of peep-holes, anyway? Don't magnify the difference so much that statements will have to be pruned down afterward. It doesn't seem that my inset sections are as "peepy" as painted; and my Danzy sections, with half the separator fences, are hardly better. [I do not think I have magnified the difference, doctor. In one place, page 817, I spoke with a degree of hesitation, as you may remember. Since that time I will admit I have spoken on this same question more hopefully; but it was only because those who have been using the two kinds have given me encouragement to do so. The few Danzy sections you produced would hardly give you a fair opportunity for comparison. After all, the best illustration of the difference is shown in the half-tone that is

given in the frontispiece of the January *Review*, and which, by the courtesy of the editor, we are able to reproduce in this issue. Mr. Hutchinson says he has tried to be fair in his collection of the two lots of sections; and if he has been I do not think anything I have ever said will need to be pruned down; for photography, in connection with half-tone engraving, tells no uncertain tale.—ED.]

I DIDN'T THINK for a minute, Mr. Editor, that there was 10 lbs. weight on a T tin; but one that sags $\frac{1}{4}$ inch with 10 lbs. will sag quite too much with the weight that *will* come on it. At least, I wouldn't sell such till I knew by trial they wouldn't sag. [It is possible, doctor, that a ten-pound weight placed in the center of the T tin might make it sag $\frac{1}{4}$ inch, when a two-pound weight might not have any perceptible effect. Two pounds is all I can really figure there would be on the T tin at a time. I do not really see the necessity of making the tin any stronger than is necessary. I have just been trying a two-pound weight on one of those T tins, taking one at random, and I can not see that it has moved a particle from the true straight edge. ED.]

"MR. SNYDER'S arraignment of bee-keepers seems a little severe," quoth ye editor, p. 84. I should say it was a *big* severe. Isn't he speaking merely for his "locality"? So far as my observation has gone, he's away off. Bee-keepers in general are honest, and the few rogues should not be taken as fair specimens of the whole. It's right to put the best side of a section next the glass, just as it's right to put the best side up on the table; but the man who faces with good sections, and puts poor stock in the middle, isn't smart. It'll come back on his own head. [You have hit the nail on the head, doctor; and if I could substitute what you say above in place of the footnote that I gave, I would "fake it." However, I will adopt it now. When I used the two words "little severe" I meant a *big* severe. For instance, I say that Mr. A was a "little rough" on Mr. B, I politely intimate that he was very much so.—ED.]

NO-WALL FOUNDATION is highly approved by L. A. Aspinwall, in *Review*. He used 3 or 4 lbs., and the product was remarkably fine. The only trouble (the foundation being warped to one side) he thinks may be overcome by fastening on three sides, possibly using split sections for that purpose. [We can make mills for this kind of foundation far easier than we can make those that use walls; but our experience seems to show that it is not *light walls* or *absence of walls*, but, rather, *thin bases*, with a *moderate wall*, that is a desideratum. If the no-wall foundation has bases as thin as natural it will be too light to resist sagging. If bees will thin walls down, and not bases, would it not be better to have a foundation with light walls, and yet with bases as thin as the bees make them? I may be wrong, but this is the way it seems to me. I hope that friends Aspinwall and Hutchinson will keep on with their experiments.—ED.]



EXTRACTED HONEY.

Why it Does and Doesn't Sell; the Farmer Bee-keeper; a Strong Plea for Well-ripened Honey; the Need of Grading Extracted Honey.

BY DAN WHITE.

In my last article, Nov. 1st GLEANINGS, page 767, on peddling made easy, I confined myself to the marketing and sale of extracted honey. I told about going to a town of about 5000 people, the plan I adopted, also my success, and that I expected this place alone would call for at least 2000 lbs. of honey. You know we sometimes allow our imaginations to run too high; but in this case my estimate was too low by nearly a half. So you see giving away a little honey and leaflets is all right; but if you are going to put *too much* dependence upon this alone, I shall be very sorry I ever told about it. It is certainly a nice way to get a trade started.

Now, then, if we will keep in mind the most important fact, and back up our short acquaintances with honey just as good as honey *can* be, the first orders will be followed by second and third orders, and a permanent trade or demand is established. Let me tell you what I want; and that is, for every bee-keeper, especially those interested in extracted honey, to join in this good work. Say we try it, and see if we can't create such a demand that it will actually force an advance in the price of honey. Suppose we form a trust—one of that kind of trusts that the people will trust us. I will agree to form a combine, providing we combine to be not only honest ourselves, but see if we can't devise some plan to get the people to combine in favor of extracted honey.

The only thing that bothers me very much in this honey business is to secure the crop of good extracted honey. Sometimes the honey-flow is light, and I can not half supply my customers. I have often read advertisements, "Extracted Honey for Sale," and sometimes I would almost feel like ordering some to supply my good old customers; but so far I have *never* ordered a pound simply because I was afraid I should get honey several grades below my standard. It looks to me as though we have been going along all these years without giving the grading of extracted honey a thought. Every fellow has been extracting and grading to his own notion, without saying a word to the other fellows. I believe we have just as good a right to agitate the grading of our product as have the comb-honey producers. While they are polishing and sandpapering their sections, say we put such a finish on our extracted honey that we can draw a little attention. You see, they are trying to attract the eye, and we will try to

attract the *palate*. No fooling. Say we commence this season—not one of us, but *every one* of us. I know we have put this off too long; but in a few years from now we shall shape things around so that manufacturers of honey-extractors will be compelled to work overtime. Then think about our getting better acquainted. If we find any black sheep in our flock we will contrive some way to weed them out. I shall be certain to find some one that I shall not be afraid to order from any time my supply runs out. This will help the demand a little.

When I am scoring these chaps who are throwing out thin honey, I am all the time expecting them to come back at me. Yes; and if their cause is a just one they will. And, again, if I fail to get a good following on this line of reform I shall then make up my mind that too many have formed a habit and are too deep in the old rut to get out. I mean they will not resist the temptation of simply dropping unsealed combs (honey in all stages) into the extractor, and, with a slight turn, out comes the honey and water.

I imagine I hear some one say, "I extract just before the bees commence capping the honey." I will admit, if one is careful enough he can get a very fair grade of honey; but possibly this subject will come up later on, then we will discuss it.

Since my last article I have learned something worse than I ever before imagined; and that is, a bee-man who actually *boasts* of getting a larger yield of honey from about 90 colonies of bees than almost any other person could have gotten. He says plainly he is after *quantity* and not *quality*; and by extracting each hive every day he gets the quantity. This was put into barrels, and sent to the cities. Think of probably 10,000 lbs. of this stuff getting into our markets just from *one* man! How extensively is this work going on? I say, shame on such work. Dare any one say this is all right?

Talk about the dairyman watering his milk! Even if he does I can respect him just as much as I do the thin-honey man. Do I hear any one say there is no use, or not plenty of room to grade extracted honey? I believe it is a duty to call a halt on this selling water in honey, and then lay it all to the little innocent bees putting the water in there. Give the bees a chance, and we *all* know they will be honest. Shame on the man who will rob the bees of their stores and honesty too. I know if it were myself I would just let the bees cure up the honey all right; then if I were bound to sell some water I would just go to the pump and get all my conscience would stand, and proceed to do the mixing. Of course, I don't believe any one can feel just right after doing this; but you see I want it so arranged that some day, when I feel too bad about it, and no one around to hear what I say, I can unload the burden a little by just saying to the bees, "I have been honest to you, anyhow; and if the honey I watered is not all right, you may lay it all to me." I am perfectly willing to help coax any one to be honest on this line; but if we can not bring about the

required result, why not ask for the enactment of a law something like the one the maple-syrup producers of Ohio are compelled to comply with?

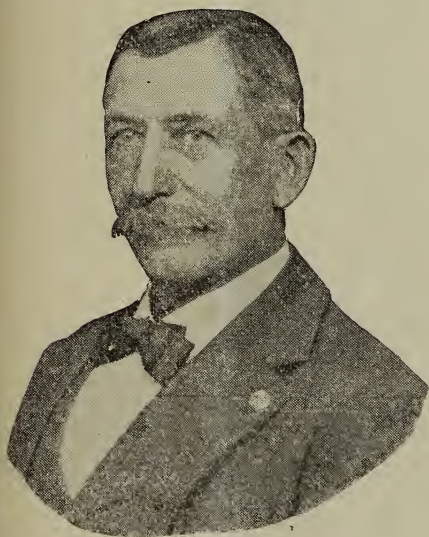
I believe one can write much better and easier if he reads what others say on this line, and I feel like thanking Emerson Taylor Abbott for what he says in Jan. 1st GLEANINGS. He talks as though it were getting to be quite the fashion to rail about the farmer bee-keepers. I don't understand it that way. My aim is directed at those who are making bee-keeping their main business. Bro. Abbott closes with precisely my sentiments: Go to work and produce a little better honey than our neighbors, and then sell it at home, or as near home as possible. Yes, sir, Bro. Abbott, I have been doing this very thing ever since I learned to sell nothing but the very best perfectly ripened extracted honey. My first two years' experience was a little on the thin order; and the injury done to my home market during those two years can hardly be described. At that time I hardly knew what to do with just a few hundred pounds of honey. *Everybody* had gone back on extracted honey. I know all about it, because I was doing my best to sell what little honey I had. "*I don't like extracted honey*" got to ringing in my ears so I could hardly sleep. Sometimes the tune would change, "*I want comb honey*." I had tried to produce comb honey, but made a failure at that, and how I was going to pay about \$1000 debt for hives and fixtures was a sticker. It is a wonder I continued in the business; but I found out I could fool the people *some* of the time, but could not fool them *all* of the time, and so I concluded I would just go at this honestly, with no fooling about it. Had I not mended my ways, possibly I should now be dumping my product in Bro. Abbott's market. Certainly I should not have had any control over a home market. There is no theory about this right and wrong way of doing any business. Facts are what we want—actual facts.

I wish I could say a few words of encouragement about placing extracted honey in the hands of grocers, but I can not do it. There are several serious obstacles in the way. Putting it in attractive packages, and commission, make it too near the price of comb honey. Then many honestly believe that liquid honey put up for the grocery is not pure honey. So many people consider honey a luxury, even if sold very low, they will not take it from the grocers as they should before we can ever throw our honey on the market as we want to. We must, in many places, educate the people by commencing in the common branches, and we must be so thorough that we finally see them graduate. Say we bee-men join hands by doing our part first class in every respect. Suppose we say 1-ss about the mixer and adulterator, and hunt out these chaps who will continue extracting this thin, green, raw, unripe stuff. Many a time this stuff has been called adulterated honey; and is it to be wondered at, when we consider the wide difference between well-ripened honey and poor unripe honey? I believe I understand why so many

extract poor grades of honey; and if I have any occasion to say any more about this I will tell you about it.

New London, Ohio.

[Since the publication of Mr. White's valuable article, given on page 767, last year, we have had a good many calls for it in pamphlet form, and we have finally decided to issue it for a merely nominal sum. After this came out I asked Mr. White to start his pencil to pushing again, for I was satisfied that one who could fill the article referred to so full of bright practical suggestions, could give us something more of value. I also asked for his picture. He objected to letting me have it; but as he did not absolutely refuse, I pressed my request and finally succeeded in securing his photo, made especially for these columns. I now take pleasure in introducing to you—



DAN WHITE.

Mr. White is a fair representative of those farmer bee-keepers—the despised class who have the reputation of putting honey on the market in all sorts of shapes and conditions. While our friend nominally belongs to that class I do not need to tell you that he is not guilty of any such practice—at least, not of late years. Mr. White is one of our American noblemen, a plain farmer whose very appearance is suggestive of rugged honesty and good hard practical common sense.

We have said a great deal about grading comb honey, in years past; but, as Mr. White says, I believe we ought to give attention to that in the extracted form as well. Now, then, as to combining into a trust. The scheme is all right, for it is a sort of trust that seeks not its own. I do not exactly know how such an association could be formed; and I somewhat question whether any more organizations than we now have are needed; and I am not sure but we could secure the object sought by asking those who join the U. S. B. K. U. to sub-

scribe to certain conditions, one of which might be to this effect:

I hereby agree not to put on the market extracted honey weighing less than 11 lbs. to the gallon.

Well, the matter is now up for discussion.—ED.]

SET YOUR BEES OUT EARLY.

Why and How to Do it; Valuable Suggestions from a York Stater who Owns Over 500 Colonies.

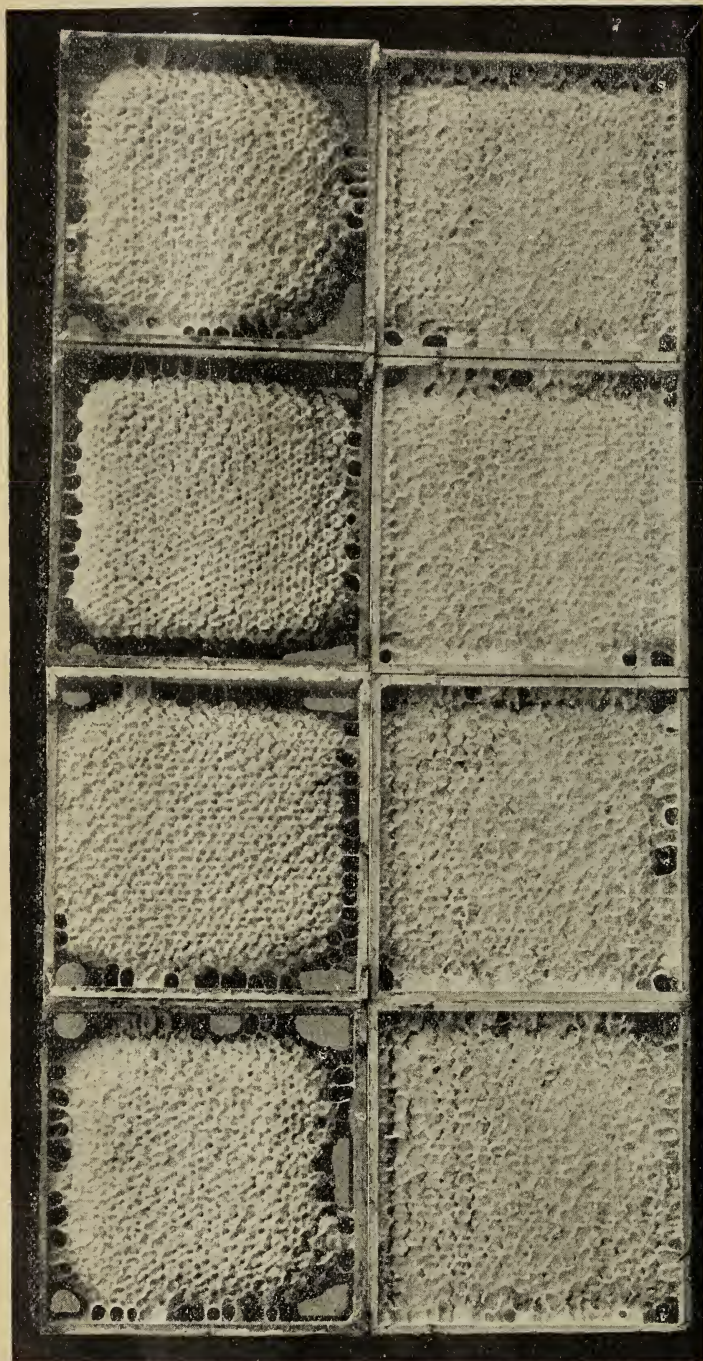
BY N. D. WEST.

My bees are now all in the cellars, sleeping very quietly. They had a grand fly Nov. 18th. Then I put them into cellars as soon as possible after that. I carry them out the last of March or by April 1st. I do not wait for a warm day to set them out as I used to do. I do, however, have some anxiety about the state of the weather the day they have their first fly. I prefer an early setting-out of bees, and getting an early brood started in cool weather before the old bees do very much flying in search of pollen or any thing else. They will get what water they need, without much effort.

After the first fly the queen will begin laying, and fill all the combs with eggs that these old bees can take care of; and they will care for more brood than any one would suppose, even if the thermometer should mark zero for a day or two.

Young bees should be hatching before the old bees are foraging very much for pollen and food; for when the old bees begin to work outside of the hive they die off very rapidly; and unless they have young bees to take their place the colony dwindles, and it takes time to recover, and the swarms are not as strong by May 15th, when the brood is started late, as when started early. By setting bees out early (not too early) bees will spring-dwindle some, but it will be earlier, and not so much at the time bees should be working. The dwindling will not be so perceptible either, as, by the time the old bees are dying off fast, young bees are hatching plentifully to care for the younger brood at a time when the swarm is at its weakest point. After this the swarm will rapidly increase in bees. The old ones will soon be gone, with a hive full of young bees for the honey harvest, and ready for early swarming. It is for this reason that bees wintered out of doors in chaff hives, when they do winter well, do not show spring dwindling as do those wintered in cellars by most bee-keepers. Cellar wintering, however, needs more experience to be successful, I think, than to winter out of doors, about the same as to produce comb honey successfully requires more experience than to produce extracted.

It is very important that bees do not waste much in their first flight after setting them out of the cellar. I have had bees waste very badly when I set them out on a very warm day, and let them fly as fast as carried out—that is, open the hives so that a hundred colonies will leave the hives the same day they are



AN OBJECT-LESSON IN COMB-BUILDING—PLAIN AND OLD-STYLE SECTIONS. (From *The Bee-keepers' Review*.)

This is a fair representation of such honey as I have seen produced in the two classes of sections. I am aware that much more perfect combs have been produced in the old style of sections than in the ones I have shown in the engraving, for I have produced them myself. In fact, I have produced just as perfect combs in the old style of sections as it is *possible* to produce; that is, I have produced a *few* such sections; but in the honey produced by Mr. Aspinwall and by Mr. Danzenbaker and by Barnet Taylor, the *majority* of the sections were filled out plump and full in the corners and next the wood, just as shown in the illustration. By taking pains in selecting I could have secured some better sections of comb that were built in the old style of sections, and, in the same way, I could have found more perfect faces of comb in the plain sections, or I could have found less perfect ones. What I have aimed to do is to show a fair representation of both classes.—W. Z. Hutchinson, in the *Review* for January.

set on the stands, and all at one time. The air will be full of bees, and they will often draw to one end of the yard, and at that end of the yard the hives will get too many bees, and at the other end the colonies will be left weak. Sometimes the front row will get too many of the bees. It depends somewhat on how the bee-yard is located, which way the wind blows, or which direction the sun is from them, as to which hives will be likely to get the most bees. But when bees are set out with hives (bottom fastened on I prefer), and set on their stands in the night or on a cold day, and not allowed to fly that day, then the bees will not fill the air so full of bees when they do fly and mix up so badly.

About the worst thing to dread we have is a light snow; and if the sun comes out very warm, causing the bees to have their first flight while the snow is soft, many bees will sometimes be lost by dropping on the snow. And, again, when the air is full of bees a cold chilly wind coming up will quickly cause bees to drop and alight on the hives and all over the ground close by. If it remains cold they will die; but at another turn of warm sun and no wind they will fly again if they alight in a good place; but if on loose snow they are lost.

It is true that bees set out later are not as liable to loss in this last-mentioned way. But for me, in my locality, I prefer early setting-out of bees.

Middleburgh, N. Y., Jan. 10.

SUGGESTIONS ON MOVING BEES.

How to Avoid Accidents; Shipping by the Carload.

BY FRANK McNAY.

Moving bees is one of the most unpleasant as well as dangerous tasks we meet in bee-keeping. With good roads and suitable weather it is none too pleasant; but when it has to be done over almost impassable roads, and regardless of weather, it requires good management to avoid disaster of all kinds. Almost every season for the past fifteen years I have had occasion to move from one hundred to three hundred colonies, sometimes over roads on which the wheels were plunging in mud-ruts almost to the hub, and sometimes over stony roads and down long hills so steep that one or more wheels had to be chained to enable the teams to hold their load; and sometimes, on account of extremely warm weather, it has been necessary to start in the evening, and drive till the small hours of morning. During this time I have established nineteen apiaries; some of which I have sold, some leased, and some moved to better locations.

In this moving experience I have learned the danger of going unprepared for an accident by over-confidence in having them secured against the possibility of escape. That an ounce of prevention is worth a pound of cure is very true; but don't let a pound of prevention prevent having an ounce of cure. I have saved teams from a severe stinging, and possibly death, by having a strong cord attached to the drag-hitch-pin and the other end

to the seat. It is dangerous and almost impossible to unhitch a kicking team attacked by bees. When moving bees with several teams they should be kept a safe distance apart, as a team following close behind a load on which bees escape is often in greater danger than the one drawing the load.

When strong colonies have to be moved in very warm weather it is dangerous to remove the super and confine them all in the brood-apartment, for they are liable to overheat and melt down the brood-combs, even with the entire top of hive removed, and covered only with wire cloth. If they are to be confined more than one day, one comb partly filled with water, and placed in the super, will be a great relief.

If there is any subject in regard to bee culture that has been slighted it is instructions for shipping bees by the carload. I have been a reader of all the leading bee-papers for the past twenty years; but when I suddenly had occasion to ship my first car of bees I found I had but little information on that line; and but for a precaution that I thought of after we commenced placing the hives in the car, there would have been a severe loss; for had we gone on placing the hives close together, many of them would have been badly overheated for lack of circulation of air through the car. My plan was to load the hives firmly, yet apart, so as to secure a circulation of air around each hive. This was done by placing a row of hives across the end of the car, a few inches apart, then securing them in place by laying two rows of lath crosswise on top of the hives, letting the ends of the lath press firmly against the sides of the car, and nailing lath to each hive with one-inch wire nails. Then we placed another row over the other, resting on the lath, with space between the hives over the center of the hives in the lower row, then we nailed on two rows of lath, the same as before. This plan worked nicely, as there was not a hive moved from its position *en route*; and as they had to be loaded two tiers deep, this break-joint plan not only served to facilitate ventilation, but also afforded an excellent opportunity to sprinkle water in the top of the lower as well upper tier of hives, which was done several times, as they were three or four days on the road.

A car of bees produces an astonishing amount of heat. Although we left both small end doors and the large door on the shady side open, yet we could feel the air very hot inside the car. Since then I have used a stock-car instead of a box car for shipping bees in car lots, and find it much safer in warm weather, as it does not confine their heat. I did not think of using a stock-car for my first shipment.

On account of the partial failure of basswood and willowherb in this State last season we obtained only about one carload of honey, which I consider less than half a crop.

Portage, Wis., Jan. 8.

[Mr. McNay is one of the most extensive bee-keepers in the country, and his suggestions come from a large and varied experience.]

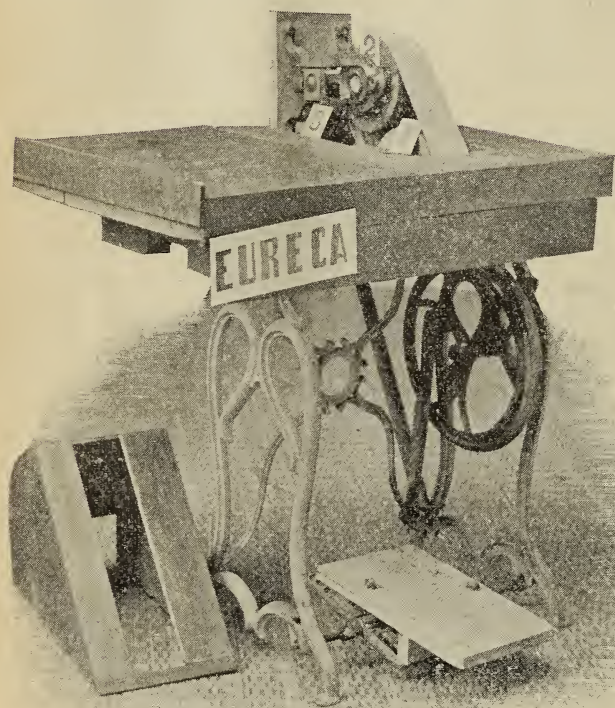
As moving bees is one of the most disagreeable as well as dangerous operations in bee-keeping we may well read what he has to say with profit.—Ed.]

CLEANING SECTIONS BY MACHINERY.

How to Convert Old Sewing-machines into Section-cleaners.

BY J. A. GOLDEN.

I inclose a photograph of my improved section cleaner and polisher. The improved feature consists of a revolving belt instead of a wheel, as illustrated in *American Bee Journal*, page 33, 1898; and as the photograph gives a better explanation of the belt device as being far superior to that of the wheel, it is unnecessary for a long article.



GOLDEN'S SECTION-CLEANER.

Nos. 1 and 2 are wooden wheels 3 inches wide and 4 inches in diameter. No. 3 is where a tension screw passes up through the table by reaching under, and a turn raises or lowers the frame holding wheel No. 2, thus tightening the belt or loosening it as desired. This frame is hinged to the table at the further side by the use of a belt. The face of the section comes in full contact on the flat surface of the belt between the wheels, the wheels so arranged as to revolve as closely as possible together. The belt revolves at a high speed.

The section is held between the hands cross-wise of the belt, thus avoiding any danger of cutting the section through at the folding corners. Then turn the section and merely touch the ends and edges of the section, and the work can not be excelled by any other method known to the bee-keeping fraternity the world over. By using the wheel, but a small portion comes in contact at one time as the section is glided over the wheel; thus you will at once see a great advantage gained by the improved belt arrangement. If a coarse grade of sandpaper is used it accomplishes the work much quicker; however, we prefer a medium grade.

I hope The A. I. Root Co. will construct a machine of simple form, and actually test the belt improved device, and tell the bee-fraternity what they think of our idea of a section-cleaner.

I am very doubtful if this belt - revolving section cleaner and polisher will ever have its peer; and I am satisfied there is not a bee-keeper in the United States, who produces section honey for the markets, after seeing it perform the work, but will procure one.

As we freely donated the wheel device to the fraternity, the belt improved device will be protected by letters-patent.

Reinersville, O., Jan. 15.

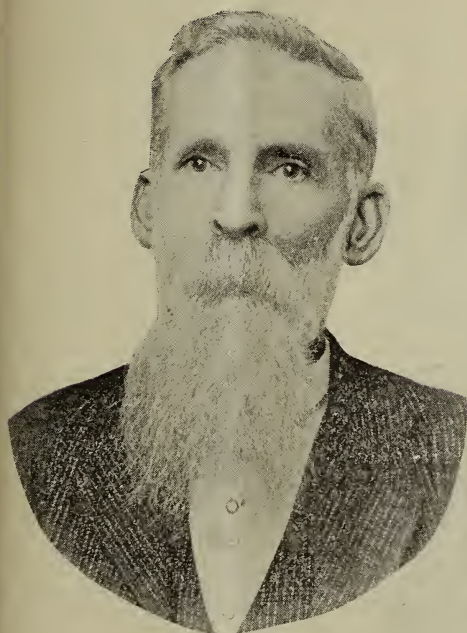
[When the article on page 35 of the *American Bee Journal* for 1898 appeared, referred to above, from the pen of Mr. Golden, I was interested, and asked for the loan of the engraving that went with it; and by the courtesy of the editor of our esteemed cotemporary I am able to reproduce it in our columns. It is the one showing Miss Flody operating the machine. Soon after, I received a communication with two photos, from Mr. Golden, one of which showed an improvement on his former machine. I have had half-tones made of both

for our own columns, and they are shown herewith also.

Not having tried any of the section-cleaning machines, I know nothing about them from a practical point of view; but when friends Aspinwall and Golden say they do their work satisfactorily and rapidly, no one is more ready to believe it than I. I can not imagine how we could have been so stupid all these years as not to see that sections could be cleaned by a machine causing a rapidly moving surface of sandpaper to press against them

unless the plain section made their use possible in a way that the old style of section would not.

I believe that all three of the machines that have been so far illustrated in our columns are good ones. As to which one will be best will depend upon a careful trial. I am myself almost inclined to believe that a revolving disk having sandpaper on its surface will offer some advantages not afforded by any of the



J. A. GOLDEN.

other machines. I hope to be in position before long to know something about it, and in our next issue perhaps I can show a picture of it.—ED.]

SELLING HONEY FOR CASH.

How to Sell Direct to Consumers in 60-lb. Cans;
Credit Selling Poor Policy.

BY M. H. DUNN.

Allow me a little space to tell just how I disposed of my honey at a fair price, and got the cash in hand for it, and did not go ten miles from home. My crop consisted of 6500 lbs. of extracted sage honey, put up in 60-lb. tin cans, two cans in a case. I have a light two-horse spring wagon that will carry about 1000 lbs. I would take four or five cases in the morning into my wagon, and start out, coming home every night, and I did not in any instance fail to sell out before coming home. Stopping at every house, I rapped at the door, wished them good morning or afternoon, as the case might be, and, with a small sample bottle in hand, I would say, "Do you ever use any honey?" Invariably the answer comes, "Oh! yes."

Then I would say, "Would you wish to get a can?"

The answer would come, "How do you have it put up?"

"In 60-lb. cans only."

"How do you sell it?"

"At \$3.00 a can, or 6 cts. per lb. and my crop is all disposed of but four cases that I have kept at home to retail from."

To those who want small quantities, the one cent a pound more charged for small quantities sold my entire crop by the can, and, in a number of instances, a case in a place, and in three different places two cases, and I sold only one can out on the road in small quantities, and only one case in a store. I could have sold it all to the wholesale trade, but could get only \$3.75 per 100 lbs. for it.

I think I am leaving my subject a little, as I started out to tell how I got the cash for it.

I had been in the grocery business for eight years in California, and knew about what they would have to pay at the store for it. In case they did not have the money I would say, "When will you have the money? State the time, and I will bring or send you a can; but I do no business on credit, and am selling very cheap for cash."

In almost every place where they said they had no money they would buy a can before I left, and find the money to pay for the same. It would be an easy matter to dispose of a crop of honey on credit, but it would be a difficult job to collect the money afterward; and the man who sells his honey on credit not only injures himself, but is ruining the market for his fellow-man. Truly he can get a cent or two a pound more for it, but he is sure to lose in the end. Some of my friends, bee-keepers, will say, "But we all can't sell five gallons at a time." Now, friends, it is just as easy as falling off a log. If you peddle your honey, go to the country, among the farmers. If they object to five gallons, answer them thus: "At 5 cts. per lb., only 60 cts. a gallon, it is cheaper than syrup. You use syrup, do you not? Honey is much more healthful."

We peddlers should leave the town and city people to the merchants who must have their goods put up in small quantities to suit the demands of their trade, and get higher prices, as the town and city folks mostly buy in small quantities. Bro. Niver, quit the credit business, is the advice of one who has tried it.

Fullerton, Cal., Dec. 27.

WINTERING EXTRA QUEENS.

Two Colonies in One; the Tenement Plan Explained.

BY DR. C. C. MILLER.

I would hardly venture to say any thing about this if it had not been for that request of my good friend Doolittle, page 888, for any "mite" one might happen to have. A few years ago double hives were a kind of fad with me. A ten-frame hive had a division-board $\frac{3}{8}$ inch thick, dividing the hive into two equal

portions. There were some good features about them, especially in the matter of preserving heat. I wintered many colonies in them, or nuclei, if you prefer to call them so. Four frames were on each side, sometimes five. Of course, the division-board was made bee-tight, so no bee could pass from one side to the other. It is not an easy thing to winter a colony having bees enough to cover only two or three frames, but there's no trouble in wintering a colony whose bees cover four, five, or six frames. Well, don't you see that, if you had a colony covering six frames, and in the middle of winter you could, without dis-



that the bees would not be able to move away from the division-board to cluster on the outer combs when the honey from the center combs was gone. I paid no especial attention to this; but I have no recollection of any trouble from it. They were always wintered in the cellar, and perhaps they always carried the honey from the outer combs without moving the cluster.

Now, friend Doolittle, I don't know that this is even a "mite," for I'm pretty sure there's nothing new in it to you, and yet possibly you haven't given it the trial it deserves. And I feel pretty sure there may be some of the younger brethren in the ranks who might do well to try something of the kind. You will readily see that, by dividing a colony in two parts, you can thus carry through 100 extra queens if you have 100 colonies.

Possibly, however, you have not thought this plan worth considering, because too much trouble to divide the colony and then unite again in spring. It might, however, be a good thing in cases where weak colonies are to be united in the fall. As to uniting in the spring, my greatest trouble was that too often, in my earlier experience, they united when I didn't want them to. All that was necessary was to have one side queenless; and if there was a hole under the division-board, just large enough for one bee to crawl through, there was no trouble about their uniting peaceably and promptly.

I never tried it in any other way than having the division-board in the center; but if I were anxious to winter extra queens I'm not sure but I would try having the division-board to one side, so as to winter a two-frame nucleus by the side of a strong colony. I should hardly expect it to work so well, however, for the strong colony might not continue all winter against the division-board. I have tried wintering six nuclei in one hive, one frame to each nucleus, but never succeeded. But they were weak in bees, and it is possible the thing might succeed if

each nucleus were strong.

As already mentioned, the greatest trouble at first was to have the division-boards bee-tight. I finally succeeded by using little tin troughs. A piece of tin as long as the inside length of the hive, and $1\frac{1}{4}$ inches wide, was bent in this shape:  The bottom part was $\frac{1}{2}$ inch for each end of the  wide. Then the hive was another tin trough made the same way, only the bottom of the trough was made just a little more than $\frac{3}{4}$ wide. The long trough was laid in the bottom of the hive without fastening (the hive had a tight bottom), then the end



GOLDEN'S ORIGINAL SECTION-CLEANING MACHINE.

turbing the bees, slip a thin board right down through the middle of the cluster, that would make no appreciable difference as to the heat, supposing the board was as warm as the cluster, and the bees would go right on wintering as if no change had been made.

At any rate, I do not know that these nuclei with enough bees on each side to cover two or three combs wintered well; and I wintered a good many of them so for a number of winters. Whenever I looked at them in the winter I found the bees all clustered together against the division-board, just as though they were one cluster. The thought may occur

troughs were put in place and nailed with two nails. The end troughs, being smaller, fit in the bottom trough. The division-board was now pushed down in these troughs, and there was no possibility of a bee getting from one side to the other. The entrance of the hive was closed at the center for about 7 inches, making the two entrances 7 inches apart, and there was no trouble about bees getting into the wrong side nor about queens mating.

PARAFFINE PAPER.

On page 889, Mr. Editor, you say you think I lost sight of the point that paraffine paper must be cushioned down tight on the sections. Not a bit of it. I had in view all the time all that had been said, but *you* have lost sight of the point I was after. I think you will not find that I said anywhere that paraffine paper tightly cushioned down would be of no use. The only point I was after, and the only one I said any thing about, unless I am very much mistaken, was that bees had such an antipathy to paraffine that they would not deposit propolis on it. Here's what I said: "My own experience says that entirely too much has been claimed for paraffine. My bees deliberately plaster glue right on the paraffine." You will remember that on page 756, 1896, it was said, "Bees disliked paraffine," and that they were not inclined to deposit propolis to paper whose surface was paraffined. I was much pleased to learn that, and suggested that, if it was correct, it would be a good plan to paint with paraffine the ends of the top-bars. But, to my disappointment, I could not find that my bees had any objection to putting glue on it. And that's the only thing I referred to. See?

While I think too much was claimed for paraffine, it is just possible that bees may have some dislike to it, and it would be well to know how that is. With the paper cushioned down tight, will bees refrain from gluing it any more because it has paraffine on its surface than if it were beeswax or lard?

Marengo, Ill., Dec. 31.

[We used to winter our nuclei on exactly this same plan, and it worked well. The uniting after one queen died or was sold, was the easiest part of it. We don't use the plan now, as we now sell off the queens in the fall.—ED.]

REPORT OF INSPECTOR OF APIARIES.

Thirty-four out of Sixty-six Apiaries Visited Discussed; the Inspector's Manner of Procedure.

BY WM. M'EVROY.

During 1897 I visited bee-yards in the counties of Welland, Lincoln, Wentworth, Brant, Norfolk, Kent, Huron, Grey, Perth, Oxford, Waterloo, Cardwell, York, Ontario, and Simcoe. I examined 66 apiaries, and found foul brood in 34 of them. I found several of the largest and best apiaries in the province very badly diseased through the bees robbing foul-broody colonies that had been brought from other parts of Ontario and placed near them. Some of the owners of these fine apiaries had invested from \$500 to \$800 in bees—

one man over \$1000; and to get their good apiaries badly diseased through foul-broody colonies being shipped into their localities was pretty hard to bear with; but I am satisfied that *none* of the parties that either bought or sold the diseased colonies that had been shipped knew that they had foul brood at the time of sale. I also found many colonies very badly diseased through the owners using old combs that they got from parties who had lost all their bees by foul brood. None of these men knew that the old combs were diseased, or were able to tell the stain-mark of *old* foul brood on the lower side of the cells. Comb foundation is a safe and very valuable thing to use, and those who need combs should use plenty of it, and not run any risks by using old combs from apiaries where all the bees have died.

When going through every colony in a diseased apiary I marked them according to the condition I found them in, putting one pencil-cross on the front of one hive, two crosses on another, and three on all very bad ones. After we got through examining all the colonies we knew the true condition of things by the number of crosses on the fronts of the hives. Some of the colonies I advised to be doubled the same evening, and the combs made into wax; and when the work was done in the honey season I had considerable increase made from those least diseased, and, as a rule, ended the season with more colonies than I began with, and all in grand condition.

At our annual meeting that was held in London in 1892 I said that my method of curing diseased apiaries of foul brood would, in the near future, be followed by the bee-keepers of every land. I am very much pleased to say that my method of treatment is not only followed by the bee-keepers of Canada and the United States, but is all the go in far-off Australia; and for this nice state of affairs I thank the editors of all the bee-journals. Everywhere I went in the past season to inspect the apiaries I found every bee-keeper pleased to have me examine his colonies; and for the very nice way that I was treated by every person I return to all my most heart-felt thanks. I burned two colonies in one apiary, two in another, two in a third place, and a quantity of diseased combs, and three in a fourth locality. The owners helped to burn some of the diseased colonies, and the other bee-keepers were consenting parties to have the few worthless colonies burned. I am also pleased with the way all the other bee-keepers took hold and cured their diseased colonies that had foul brood in the summer. While examining their colonies to see if the bees had enough honey for winter, some people found things not right. I found it to be pure foul brood. I explained how to cure it in the most profitable way and put every thing in order. My time, car fare, and livery hire, was \$525.90.

Woodburn, Ont., Can., Dec. 6.

[Inspector McEvoy has had more experience, and more to do with foul brood, than any other man in the world. While I think I know very nearly his method of cure which

gives such good results, I wish he would tell the readers of GLEANINGS his exact *modus operandi*. Indeed, if he will cover the ground fully we will make it into a little book, to sell at a nominal price. We are making quite a collection of these booklets touching the vital features of our industry; and it occurs to me that we ought to have one on foul brood from the man who, above all others, knows the most about it.—ED.]

CALIFORNIA ECHOES

BY J. H. MARTIN.

ASSOCIATION ECHOES.

The California State Bee-keepers' Association met in the Chamber of Commerce, Los Angeles, Jan. 10, with Prof. Cook in the chair, and about sixty bee-keepers present. Among those interested in bee-keeping from foreign parts were Thos. Wm. Cowan, from London, England, and W. L. Porter, of Denver, Col.

Significant. While discussing the merits of the old versus the new Union, C. A. Hatch presented the following resolution:

Resolved, That the new United States Union should absorb the old National Union. Majority for the resolution, 43; no opposition.

The bee-keepers talked right out in meeting about adulteration. A few joined the new Union for the purpose of giving aid to an organization that would prosecute adulterators. Funds is what the new Union needs, and bee-keepers should not be backward with their dollars.

The no-bee-way section was not looked upon very favorably by the comb-honey men. It was noticed that the unfavorable criticisms were mostly theory. The section has never been used here.

Mr. Mendleson was quite enthusiastic over the Danzenbaker section, and exhibited a beautiful case of strictly fancy honey which is now on exhibition in the Chamber of Commerce. Mr. M. will use the Danzy exclusively in his apiaries.

Mr. McIntyre, in his plan of increase by nuclei, can easily make ten colonies from one. Mr. Williamson went him one and a half better than that, and said that he had made twenty-five from one. We have no doubt there are bee-keepers in some obscure canyon who can do even better than that in this favored clime.

Mr. Thos. Wm. Cowan gave a very interesting address upon bee-keeping in England. Bee-keepers are evidently more thoroughly organized on the other side of the ocean than we are here; but come to think of it, they have not so much territory to organize. If our bee-keepers were all in New England we have no doubt we could do the same thing and come out ahead; but look at the magnificent distances over which we have to make an organization. It takes one's breath away to think of it.

Mendleson's plan to prevent the spread of

foul brood is, to pass a law preventing the moving of a foul-brood apiary into a location where there is no foul brood. A person when moving bees should be compelled to get a certificate from a foul-brood inspector guaranteeing the good health of his bees.

Cans and cases for extracted honey are going to be cheap this year. Several competing firms are on hand with their wares.

W. T. Richardson, President of the Exchange, was not able to attend. He is quite ill, and confined to his home.

Mr. H. E. Wilder put in an appearance at the convention with some feminine wraps on one arm and a lady on the other. This lady was afterward introduced as Mrs. Wilder. We bachelors were a little dumbfounded at first; but seeing that the knot had been tied strong, and that we could not help ourselves, and that it was none of our business anyway, we did the next best thing—congratulated the bride and groom. Mr. Wilder has built a new and elegant residence in his wild canyon, where his latch-string is out to all bee-keepers. I am now wondering who is the next bachelor who will slide off in that way.

The Exchange Board of Directors will hold over another year. Mr. Stubblefield withdrew, and H. I. Morse, of Hemet, takes his place. J. H. Martin, who has served as Secretary, owing to poor health, and the fact that he never felt himself qualified to handle the honey department, desired to retire from the office, whereupon C. H. Clayton was elected Secretary and Manager.

There was also a change in the officers of the State Association. Prof. Cook, who has held the office of President for three years, was succeeded by C. A. Hatch. The Secretary, who had held the office for six years, was superseded by J. F. McIntyre. There were but few ladies in attendance at the convention. We hope that Mr. McIntyre can remedy this defect in our yearly meetings. From the way Wilder slid off into matrimony, and brought his wife to the convention, Mc. might try a little matchmaking among the bachelor bee-keepers of Ventura Co.

THE PRETTY BEE.

Pretty bee!
Speak to me!
What do you all day long,
Making honey midst the song
Of the busy bees?

Pretty bee!
Don't sting me?
I will get some money
From the profit of your honey,
Though I ne'er will do you harm.

Pretty bee!
Work for me!
Pretty bee, pretty bee, cheer up;
I will feed you sugar syrup—
You must never come to harm.

Pretty bee!
Thanks to thee!
I have made some money
From the profit of your honey,
Yet I ne'er will do you harm.

LULU E. CONNER, age 11.

BLANTON'S REPORT.

A Yield of 18,000 lbs. from 214 Colonies; the Damage Done by the Breaking of the Levee.

BY O. M. BLANTON.

A review of the past season shows one remarkable for its drawbacks, also the wonderful recuperative powers of the soil from them. The spring was cold and backward, with an excessive rainfall. The Mississippi River reached a flood-line far beyond any previous year, causing quite a number of crevasses in the levees, flooding the greater portion of the

and was caused by a cut-off about forty years ago. The crevasse occurred at night, from a violent storm, the width of thirty feet increasing within a few days to sixteen hundred, drowning 40 head of Holstein cattle and 60 head of Southdown sheep, the horses and mules having been removed.

A good crop year always accompanies a good honey season. My apiary was placed on a scaffold, and it was the first of June before I could commence extracting, which placed me two months behind. The usual time to begin is the first of April.

The season closed with a yield of 18,000 lbs.



THE BREAKING OF THE LEVEE.

Yazoo Delta, about 3,000,000 acres, resulting in great damage. A few persons were drowned, and about five per cent of the live stock. The remainder were saved by being removed to high ground, or placed on scaffolds. The crops were destroyed, but replanted as fast as the water receded. With a favorable season it grew rapidly, and fruited beyond expectation. Where the water was in April five to twenty feet deep on the plantations, now they are covered with immense crops of cotton, yielding from $\frac{3}{4}$ to $1\frac{1}{2}$ bales of the fleecy staple per acre.

I send you a photo of Lake Lee crevasse, looking northwest to the lake. The lake was originally a portion of the Mississippi River,

of extracted honey and 300 lbs. of wax, from 214 colonies, spring count—a good yield, considering the loss of two months.

Eighteen ninety-six was remarkable for the long dry season. From the 15th of April until the 5th of September there was not enough rain to lay the dust. The forest-trees and vines growing about the lagoons steadily yielded nectar. In July there was an abundant honey-dew which produced a light amber honey of excellent flavor. The occasional showers in September caused an immense honey-flow, which continued until the 20th of October.

HIVES AND FRAMES.

So much has been written in regard to hives

and frames that it seems superfluous to touch on the subject; but from an experience of thirty years, working for extracted honey, I am convinced that a large hive of not less than twenty L. frames is required. For rapidity and ease of manipulation I prefer the space between the bottom-bar and the floor of the hive to be half inch, and as much between walls and frames. In construction of hives no allowance is made for shrinkage of timber exposed to the hot sun or the sagging of the bottom-bars.

The question may be asked, how about burr-combs? They are far preferable to propolis; and if the honey is extracted as rapidly as placed in the combs, there will be little trouble with them.

A top-bar should be not less than one inch wide, for a bee-keeper wants to carry thick heavy combs to the extractor, saving a large amount of work. Bees will not build as thick a comb on a $\frac{3}{4}$ -inch top-bar as on one an inch wide. Give me wide top and thick wide bottom-bars, with plenty of room in the hives for rapid and easy manipulation, then I can go through my apiary with celerity. Frames are too often made for comb-space at the loss of strength and durability, which makes a dear frame for one working for extracted honey.

Greenville, Miss.



"Scale Colony;" Its Use; Recording Temperature; Weather and Colony Conditions, etc.

BY R. C. AIKIN.

I have always been interested in keeping a "scale colony." I suppose for over 15 years I have always kept a colony on scales during the honey-flow. I am fully satisfied there is much to be learned by carefully recording the work of a colony each day, together with the weather conditions and the conditions of the colony. I regret very much that my work in this line has not been more methodical and thorough, and that it is only within the last few years that I have preserved the records beyond the season of making them. I am now endeavoring to accumulate a list of records; and that this collection may become large at as early a date as possible I wish to ask any who have such to exchange copies with me. We can each make a copy of what we have, and exchange by mail.

Every apiarist, who closely observes, knows that some of his colonies do not do nearly as well as others, though apparently in equally good condition. Usually the difference is attributed to laziness or some peculiar trait in the blood of the stock, and off must come the

head of the queen of the colony that is behind. I have long believed that many a fine and valuable queen has been sacrificed simply because her owner did not know the environments that caused her colony to fall behind.

How many who read these lines have decided to kill a queen because her colony has built too many burr and brace combs? I know that there is a difference in disposition, vigor, or other traits in bees; but there are so many factors that bear upon the colony, and influence results, that even the most expert apiarists will be mistaken in their judgment at times. Possibly some burr-combs are built because it is in the blood of the colony (they are predisposed) to do so; but I am just as sure that ninety-five out of one hundred or over of all burr and brace combs are caused by something else than a trait of the colony building them. The principal cause of burr-combs is improper spacing; next, lack of storage room; and, third, a surplus of wax.

Suppose that two sets of men go out to dig potatoes. One crew gets into a patch yielding 300 bushels per acre, the other crew to a patch that yields but 100 per acre; which will harvest the most potatoes? Or, send out several huntsmen to bring in game, and they, not knowing where the game is, but each striking out for himself, would you expect each to find and kill as much as the other? It is just as reasonable to expect even results from different colonies of bees as to expect ten hunters to each return in a given time with ten rabbits.

I believe that bees communicate to each other by some means, especially between members of a colony, and to some extent between members of different colonies where located close together; but where there are various blooms and fields to labor in I do not believe that the forces of all colonies are equally distributed in all fields. In order to get light upon this point it has been my desire to have a number of colonies upon scales and compare their work, though I have never been able to have more than two scale colonies at one time. To lift colonies on and off, using one scale for all, is too much work for a bread-and-butter winner.

Although it is many years that I have followed the practice of taking daily records of a colony during a honey-flow, I have not yet obtained all the knowledge sought or obtainable in that way, yet I have learned some things that seem of value.

I consider that the daily weighing fully pays for the trouble, in its being an index of the strength of the flow, that thereby I can determine more quickly what will be needed in the way of supers and super adjustment. A colony may bring nectar freely for a portion of the day, yet the average of the day's work be nothing extra. If an average colony is gaining two pounds gross daily, I know that means about one to one and a half net, say about twenty days to fill an ordinary super. The scale also tells me within a day or two whether the flow is increasing or waning. It is the surest and quickest way of obtaining a general knowledge of work being done, unless one

examines many colonies frequently. The more colonies weighed, the more definite would be the index.

HONEY SECRETION BEFORE A THUNDER-STORM.

I find that there is a difference in the showing of the scale colony as between here and Iowa, in reference to weather conditions. I remember how, years ago, a cloud would show in a long line across the northwest, and gather and slowly rise for hours, and at last it would overspread the heavens and give us a wind, rain, and thunder storm. Preceding these general storms the weather was usually hot, and more or less sultry. These storms would be several hours in approaching after the first long line of dark cloud appeared above the horizon, and frequently the rain and thunder and lightning would continue from one to four hours. If such a storm came late in the evening we would expect the next day to follow it with a cool northwest bracing wind. The greatest gains in nectar were always just preceding these storms, while the day after usually gave not one ounce of gain. If the storm was quite general and severe, very little would be done till the third or fourth day after.

Notice that the conditions were, first, gathering storm-conditions, apparently for a general or far-reaching storm, behind it coming a general clearing push of cool air from the northwest. I suppose Hicks would call it a change from low to high barometer, the change following the storm being the inrush of polar air. As already stated, the greatest gain shown was just preceding these general storms—usually the last day preceding, while the day after usually showed a loss, indicating that not enough was gathered to equal the evaporation of that already in, the flow seldom reaching a normal strength till the third or fourth day after the storm.

I think I hear many saying the nectar was "washed out." I do not think so. How could it wash out? Does not almost every flower turn its face from the storm, especially if there be wind, as there nearly always was? If it was washed out, why did not the next day secrete more—even the second and third days? Then, too, why was the secretion greater *just before*? My observation shows that a sweeping change of weather conditions stops—more or less in proportion to intensity of the change—nectar secretion, even though no precipitation be present to wash out the nectar. Thermometers are very cheap, so that all may study nectar-secretion as regards temperature; but a good barometer we can not all afford. I believe the use of a barometer would far exceed in value the thermometer as a help in studying conditions governing nectar-secretion.

Last winter, while in Iowa, I held a bee convention with Mr. J. L. Strong, of Clarinda, in the southwest part of the State. He has for years kept a written record of scale colony, showing daily gain, temperature, precipitation, and general weather conditions. His records are quite complete and interesting. They show that rain does not necessarily stop secretion of nectar. If the ground is already

too dry, and plants suffering for moisture, rain rather increases than diminishes the secretion. Notice, I do not say a storm, but *rain* increases secretion if the plants are *needing the rain*. Local showers are quite different from the sweeping storms previously described. On the other hand, his record shows that rain in *excess of needs* unfavorably affects secretion.

It will not do, however, to apply the principles in the preceding paragraph too loosely. Some plants require more moisture than others. The foregoing conditions have particular reference to white clover. I feel quite confident that heartsease will bear more moisture than the clover, though I am not positive of this. Our Colorado cleome will yield when growing out of ground that would seem too hard and dry for any thing to succeed in, and I think it also delights in a rather cool atmosphere.

RAPID CHANGES IN WEATHER AND TEMPERATURE IN COLORADO.

Weather conditions are much more rapid in their changes here near the mountains than elsewhere, and changes are harder to forecast. We have at our postoffice a government signal-service report or forecast. The mountains so affect storms by deflecting or breaking the air-currents, and in other ways affecting the conditions, that the forecasts are not nearly so certain as at points more remote from the mountain districts. Our general storms east of the mountains, that come with a steady sweep and lasting effects, almost invariably come from the northeast, with damp and chilly winds, laden with moisture, I suppose from the lake regions. By all odds the bulk of precipitation comes from these northeasters, and, as well, our changes to cold. One would naturally expect the west winds coming from the snow-clad mountains to be cold; but the fact is, such bring a rise in temperature. I am drifting from my subject, and will return.

I find that there is quite a difference between here and the Missouri Valley. Changes here, particularly in temperature, are very rapid. We think very little of a change of 40 or 50 degrees in 24 hours. Even in June and July, in the midst of the honey season, the thermometer will often register 40 to 50 in the early morn, and at noon be from 80 to 90, and an equally rapid fall in the evening. You would naturally expect these extreme changes to affect the bees very unfavorably; but you should not forget that neither cold nor heat is as penetrating in this very dry atmosphere as in more moist climes. In a calm clear day bees fly freely at 40 to 50 degrees, yet snow not exposed to direct rays of the sun will scarcely melt at all. As I write this the first days of January, the thermometer on the north side of the house has been registering, several times, between 50 and 60, bees flying freely, yet snow of a two or three inch fall is yet visible on that same north side, not many feet from the thermometer. I will here give a statement in brief of part of the temperature records for the past summer.

The honey-flow began June 12th. The 31 days from June 13th to July 13th, inclusive, was the extent of my alfalfa honey-flow. The

temperature was recorded morning, noon, and night, taking 6 A. M. and 1 and 7 P. M. as the time. The morning entries varied from 5 to 7 o'clock, but averaged about 6. The noon entries were nearly all made at 1 P. M., and the evening at 7. The average noon temperature was about 85½, the lowest being 70, 3 days out of the 31; 2 days 75, and one day 78. The highest was 100, and over 90 for 11 days. On June 18th there was a little frost in the bee-yard; but at 6 the temperature was 45, the noon temperature being 75. The average morning temperature at 6 o'clock was 53. The average evening temperature was 68, the lowest 57, and the highest 84. Notice that the evening temperatures were taken at 7 o'clock, which was before sundown those long days. After sunset the mercury would drop several degrees in half an hour or so.

In the next article I will continue the subject of records, and will give something of an analysis of the 1897 and previous records.

Loveland, Colo.



ABOUT BASSWOOD BLOOM.

Question.—We had a full bloom of basswood this year, but for some reason the bloom failed to yield any honey. Is it not reasonable, therefore, to suppose that the failure to secrete honey may cause the trees to bloom profusely another year? If we could tell about these things, it would be an item of importance to many bee-keepers who live in the basswood belt.

Answer.—At first glance, it might seem reasonable to suppose that, where nature was foiled one year, she would make up the loss the next; but, really, was nature foiled in any way, so far as the basswood-trees were concerned, by the failure of the secretion of nectar? If no seed was perfected, then the results which nature desired to accomplish did not mature; but in all of my experience I have never known the basswood to fail in yielding fruit (seed), no matter whether nectar to any amount was secreted or not. I firmly believe that no seed would be perfected with the basswood, or very little at most, without the aid of insects to pollinize properly the blossom; but I have yet to see the time when there were not bees and other insects roaming over the blossoms in numbers sufficient for the full fruitage of this tree, no matter whether any basswood nectar was accumulating in the hives or not; and if abundance of fruit is borne, nature is not foiled in her undertaking. If I am correct, the producing of an abundance of nectar or the entire failure of nectar has no bearing in the matter of fruit-yielding whatever, only so far as it attracts insects which further a more perfect pollenization of the flowers. In other words, the nectar itself in no way enters into the vital fluids which go toward the perfecting

of the seed and the husk, or that which incloses it. Many seem to suppose that a failure of the perfecting of the blossoms into fruit, during any year, has a predisposing influence toward a more profuse blooming the next year; but I doubt whether such have ever stopped to analyze their thoughts on this subject. If I am correct, such a failure can have no bearing on the subject whatever, as the embryo blossoms or an entire absence of the same is found in the partially perfected product for the next year, before the present season's blossoms open; that is, the embryo blossoms are all formed in the little buds at the base of each basswood leaf which appears in full perfection, although not in full size, before the flowers then on the trees open to invite the bees to a sumptuous feast, or open without that feast being spread; hence it will be seen that, if through any failure of fruitage greater strength or vigor is added to the tree, it can not possibly show itself earlier than two years from the time the failure occurred. It is always well for us to stop and carry any thought to its logical and legitimate end before we begin to prepare for some supposed thing which a little logical reasoning would convince us could never come to pass.

ITALIANS OR HYBRIDS.

Question.—If you were breeding especially for honey-gathering purposes, which would you prefer—the golden Italians, dark ones, or hybrids? If hybrid bees, how would you breed them for best results?

Answer.—Volumes have been written on this subject, and the matter is not fully settled in the minds of many at the present time. Some of our very best bee-keepers tell me that they do not know which is best; but from my standpoint a true solution depends upon which we are producing—comb or extracted honey. If I were producing extracted honey altogether, I think I would select the darker Italian, or those produced from queens reared from an imported mother, allowing these queens to mate with whatever drones there were in and about the apiary, paying no attention as to whether these drones were from Italian, hybrid, or black stock. If I were working for comb honey exclusively, then I would procure a good queen of the golden variety, rearing all queens from her, and allow them to mate with any drones they might chance to meet, the most of which would, without doubt, be from an entirely different "blood" from themselves, which would give a direct cross. Such direct cross always gives the greatest vigor, and, as the question is asked, I should not care one cent whether my yellow queens mated with drones from black or hybrid stock, as all of my experience goes to prove that thoroughbred golden Italian queens, mated to drones of either black or hybrid stock, give bees equal to the very best for comb-honey purposes. But if I could conveniently hinder the thing I should prefer not to have these queens meet drones from young queens reared from imported mothers—not because they would not give bees just as vigorous, and of just as good honey-gathering qualities, but for

the reason that, as a rule, workers having much imported "blood" in them do not cap their honey nearly so nice and captivating to the eye as do those having more of the golden, hybrid, or German "blood" in them.

To sum up I would say, first have your queens mate with drones as distantly related to your queens as possible; second, use queens as closely related to imported Italian stock as possible, where working for extracted honey; for there are no bees in the world, in my opinion, that excel those one generation from imported stock, for honey-gathering. Third, where white capping of combs becomes one of the great objects to work for, as is the case when working for comb honey, then choose the golden Italians, on account of their qualities in that direction; while at the same time they are in no way second to Italians from imported stock, as to their honey-gathering qualities. Try these things for yourself, until you have proved which is right, and then, as the conductor told the little boy in the sleeping-car, carry out what is right, if it stops the whole train.

Among the passengers on a sleeping-car going across the continent was a father and mother with a bright beautiful boy of about six or seven years. The little fellow, by his gentle manners and courteous behavior, soon became the general favorite. Supper was over, and all were well started out into the darkness of the night. The berths were being made up as the new conductor entered, saying, in a rather stern voice, "Tickets, please." As the attention of the passengers was attracted to him he was seen to stop suddenly. Before him was the little favorite in his night-dress. The boy's mother said, "Robbie, can't you offer your prayer in bed to-night? There is no room in the aisle where so many are passing." But he answered, "No, mamma; I feel that, if I would be right, I must kneel down to pray." The conductor, who stood listening, said, "Yes, my boy, you may kneel down in this aisle to pray, even if I have to stop the train for you." While the dear little fellow knelt, and with folded hands prayed to the great loving heavenly Father, the conductor, removing his cap, stood reverently, while the tears were seen to glisten on his eyelids. The petitions of all praying hearts in that car were more fervent that night, and some forgetful ones were led to do right by once more embracing the long-neglected privilege of prayer.



THE FENCE AND THE BIG HIVE.

Friend Ernest:—I am interested in the "fence" question. In my experience I have found that the bees will produce more comb and honey if they can work in a mass. The poorest results are from cramping them in small one-pound sections. As I retail the

most of my honey I have clung to the 2-lb. section on this account. The slatted separator is no doubt good, but I have been thinking along friend Pettit's idea since the subject came up, with this difference: Some time ago we had a honey-board made with slots similar to that of the present zinc. Why can't you take your separators, steam them, and run them through the perforating-machine that you put the zincs through? If they curl they could be dried under pressure, or perhaps punched without steaming. That would give us a ventilated separator that would allow of the warmth of all the bees circulating throughout every part of the super, and would allow the bees to move quickly to the sections where the combs were ready to receive the worker's load when it comes in. With the small separated spaces, I have often thought that a loaded bee has sometimes to make an extended journey to find a section ready for it.

I am feeding my bees. I find them all very light save the bees in the hive with double brood-chamber. There was a case of extracting-combs left on it last fall (a common practice in California). I went over the bees last week and found hive after hive very light, till I reached that big hive, when, to my surprise, I found both lower bodies well filled, and the combs in the super packed solid with beautiful honey that they had gathered after we ceased extracting. Hurrah for the roomy hive, in this locality! E. H. SCHAEFFLE.

Murphys, Cal., Jan. 25.

[I am well aware that honey-boards have been made by running strips of thin veneer wood through a zinc-perforating machine; but so much of the wood is cut out that what is left is very weak and flimsy. Then, moreover, it is impracticable to punch out wood in the same way we do metal. It *can* be done, but the edges of the wood will be rough and stringy. Our present plan of using slats in a fence separated a perforated-zinc distance apart is easier to make, and stiffer. If the Pettit divider is a good thing its form of construction will be between some form of fence, or plain board perforated with holes. The time will come when bee-keepers everywhere will have more respect for big hives than they do now. I shall use in our out-yard, same as last season, two-story eight-frame hives, even for comb honey.—ED.]

HEAVY TESTIMONY IN FAVOR OF THE DEEP OR LARGE ENTRANCE.

Allow me to acknowledge my indebtedness to your valuable paper for the deep-entrance idea. It is, I believe, worth more to us bee-keepers here in the South than any thing we have had in the way of improvements for several years. It has entirely prevented lying-out this past summer. It has helped to control swarming; for, when used on 8-frame hives, they swarmed very little, while those without the deep entrance have all swarmed, some of them twice. It has increased the honey-yield by preventing laying out, and consequently keeping the bees in working order. On hives with deep entrances, ten per cent

were short of stores Jan. 1, while on those with ordinary entrance, $33\frac{1}{3}$ per cent were short the same date.

The experiment gave another interesting fact which was noticed when the wedges were removed—10 per cent of the frames had the combs carried down to the bottom-boards. In every instance these frames had bottom-bars $\frac{1}{4} \times \frac{1}{4}$ inch. Half of the frames used had bottom-bars $\frac{1}{4} \times \frac{1}{4}$ inch, and half $\frac{1}{4} \times \frac{3}{4}$, with the above result.

First pollen is coming in to-day from tag-alder. Last year the first pollen was brought in Feb. 14th, from the same source.

JAMES L. MONTGOMERY.

Americus, Georgia, Jan. 12.

[This is valuable, coming as it does at the beginning of another season when many, perhaps, are debating whether it will pay to change to the large entrances.—ED.]

HOW TO CONTROL SWARMING AT OUT-YARDS WITHOUT KEEPING AN ATTENDANT.

Ernest:—Will you please tell me the best way to manage an out-yard—that is, to prevent swarming where there is no one to hive the swarms all the time? Would it not work well to put on zinc entrance-guards with our Danzy bottom and $\frac{7}{8}$ entrance, letting them extend a good way up the hive so as not to hinder ventilation too much? Dr. Miller has out-yards. I wish he would tell through GLEANINGS just how he manages them.

J. F. BEELER.

Clear Springs, Tenn., Jan. 18.

[This question is a poser. There is no method that gives entire satisfaction; but I will tell you how we would proceed, and how, in fact, we worked our out-yard last season. All queens' wings are clipped, or else perforated zinc is put over the entrances of colonies with queens not clipped. Toward the swarming season I put on an extra hive-body containing empty combs or frames of foundation with a frame or two of brood from below. Empty combs are put in place of the brood-frames removed from the lower story; but prior to this I aim to have the colonies rousing big ones, and the queen a good one. After the bees have pretty well filled up the upper story with brood or honey I sometimes put a comb-honey super on top of the whole, or I may remove the upper story, crowd all the brood as far as possible into the lower story, and put two supers of comb honey on in its stead, as one super would not hold the bees. The combs containing honey are set aside for the purpose of extracting, or for wintering-stores. Colonies so treated have rarely swarmed for us; and while it is true some honey goes into extracting-combs that might have otherwise gone into comb-honey supers, the general good working condition of the colony, and, in the generality of cases, lack of a desire to swarm, I think more than compensate for this. Last season I had a large number of two-story colonies at our out-yard that filled two and three supers of comb honey while some of the single-story colonies filled but one and two, and

swarmed in the bargain. In the upper story, extracting-supers had from three to six extracting-combs of sealed honey. These upper stories were often removed, and in place were put two comb-honey supers, and as a general rule the bees would go into them with a rush. To have put on simply one would have crowded the bees and caused them to hang out of the entrance. And this reminds me that one of the important requisites in keeping down swarming (I will not say prevent it) is to give large entrances; and if perforated zinc is used over them there must be enough surface of metal so that the entrance itself is not contracted. The new 1898 Tinker-zinc entrance-guards or Alley traps will give the freest kind of ventilation.

Some others would not proceed at all on the plan I have mentioned. They would use single-story colonies, cage all queens at the approach of the honey-flow, then in eight or nine days shake all the bees off the combs and destroy all the cells. Doolittle, on page 16, reports trying a similar plan, and says it is a success; but my own experience seems to indicate that a colony with a caged queen, or no queen at all, is *apt* to sulk. They appear to feel as if something were wrong, and won't work. Yes, by all means I should like to have Dr. Miller or any one else tell his way.—ED.]

OBJECTIONS TO THE MARKS METAL-SPACED FRAMES.

The objections to the Marks-Hoffman metal-spaced frame, as illustrated in Jan. 15th issue of GLEANINGS, is that the cost is too much, and there is too much of a death-trap; also the frames can not be reversed endwise. A frame is not practical unless it can be reversed endwise. I have tried all of these kinks for 20 years, and I will bet the staples and end-spacers, as I use them in my hive, against any other form or style of frame yet invented, that I can handle a half more hives the way I use them, in the same time, than any other style of frame or hive yet invented. I am ready, and will prove this at any time by actual trial in the bee-yard. I do not want any death-traps around me. All frames that are constructed on the Marks style are death-traps, and should not be used in these hard and close times, and especially in the bee-yard, where time is money. I think you made a mistake when you shortened the shoulder to the Hoffman frame. It does not leave projection enough to grasp with the fingers.

F. BOOMHOWER.

Gallupville, Scho. Co., N. Y., Jan. 23.

[With regard to the shortening of the top-bar to the Hoffman frame, see pages 9, 11, and 12, of Jan. 1, this year. As to the metal-spaced Hoffman, I don't know enough about them to speak from experience.—ED.]

WINTER VENTILATION.

I have gone over my bees on a frosty morning, and found them clustered along the bottom-bar with the frost close to and at times

showing on the hairs of the bees. As there was an abundance of room above, why did the bees select the coldest place in the hive? Those that winter indoors tell us that the bees cluster below the bottom-bars. This is not an accident, and I have concluded it is for want of ventilation. The top of the hive is hermetically sealed, the air grows foul, and the bees leave the stores and warmth of the upper part of the hive for the pure air to be found below. I winter my bees on their stands. So far this season the thermometer has stood at 40° to 80°, but we are now apt to have it crawl down to "freeze" any night, and remain there for weeks. My hives all have ventilators in the rear of the hive, just below the lid. To leave these open in winter would make the hive too cold in a protracted cold spell. My bees must be allowed to fly. To hit the combination I have concluded that a ventilator in the front of the hive, not over ½ inch in diameter, just below the lid, will give the hive the needed ventilation without subjecting the bees to the draft, as the air would circulate from the entrance up the front and out of the ventilator. Gallup pointed the way when he wrote: "The thermometer for sixty days in succession was not above 10° below zero, and for eight of these days the mercury was frozen; yet my bees, in box hives, with a two-inch hole in the top, and the bottom plastered up tight, came through in excellent condition." The italics are mine. Unfortunately, Gallup does not say how he protected that top hole from snow and mice. Gallup's system is suited only to those sections where the bees do not fly throughout the winter; but it shows, what we have all found in ventilating our rooms, that the ventilation should be *at the top*. E. H. SCHAEFFLE.

Murphys, Cal.

TWO-STORY COLONIES; DEAD BEES ON THE CELLAR BOTTOM.

1. I read that, in working for comb honey, it is a good plan to put an empty hive of comb or foundation under the old hive in the spring, and then take it away at the beginning of the honey-flow. Now, suppose the queen has begun to lay in the lower story, and when you take her away at the beginning of the honey-flow what do you do with the brood?

2. Would this be a good plan in raising queens? Take a frame of your choice larvæ; put it into an empty hive with a frame of honey and pollen and two frames of hatching brood and the bees that remain on the combs when taken from the hives. Close up the empty space with division-boards, and set the hive on a new stand.

3. How many bees should be swept up from the cellar bottom each month, the cellar containing seven colonies?

4. How can you find out whether the bees have dysentery or not by examining those taken from the cellar bottom?

ROY O. CLARK.

Lake Crystal, Minn., Jan. 3.

[1. We have never practiced exactly that method; but brood can be given either to weak

colonies or be used for rearing nuclei; but my plan would be to let them keep the brood. The two-story double-decker colonies are the kind that get honey for us when those in the single story do little or nothing in the spring.

2. Yes.

3. This is a hard question to answer. In a cellar containing 75 colonies there might be only a pint of bees to sweep up, and there might be a bushel a month. There will be far more dead bees on the cellar bottom in the fore part of the winter than during the latter. It all depends upon how skillful one is in wintering, and also whether the temperature of the cellar can be properly regulated. If the temperature were too high or the cellar not properly darkened, I should expect a good many more dead bees than when the temperature is somewhere about 45°.

4. If bees have dysentery they will spot the hives up badly with a sort of brown foul-smelling drops. If they have the disease you will know it.—Ed.]

BEES WINTERING WELL; A GOOD CROP OF HONEY.

My 125 colonies in the cellar are wintering nicely so far. My crop of 3 tons of comb honey was fine, and all sold at home for 10 cts. straight, and cases returned. Clover burned out some, but I think we are all right for 1898. Sheffield, Ill., Jan. 26. A. L. KILDOW.

THIRTY COLONIES IN A SOLID SNOWDRIFT.

Thirty of my colonies are in a solid snowdrift, covering them completely. The other three rows are in soft snow two feet deep. They are all packed in sawdust alike. It will be a good test of snow-wintering if I decide to let them remain as they are; but I think I shall open up the entrances in a few days.

Farwell, Mich., Jan. 28. T. F. BINGHAM.

HONEY SNOW CREAM.

One cup rich sweet cream; ½ cup extracted honey of decided flavor; mix and cool thoroughly, then stir in fresh, light, feathery snow till it crumbles, and serve at once. If I am not mistaken you will say it is better than any ice-cream you ever tasted. The above will be enough for four good dishes.

C. J. BALDRIDGE.

Kendaia, N. Y., Jan. 26.

TARRED PAPER IMPARTING ITS ODOR TO HONEY.

The question is asked in GLEANINGS, "Will tarred paper affect bees?" I will say that I had one crate of 40 lbs. of my best basswood honey spoiled for table use by being covered with a small strip of that kind of paper; but the bees would steal it just the same. It's no good to-day, for it smells and tastes of the tar.

G. H. BABCOCK.

Brookfield, N. Y., Dec. 30.

[While the bees do not object to tarred paper, it is no doubt true that, when placed over honey, it will impart to it some of its tarry odor. Honey will appropriate to itself odors

very rapidly, and that is the reason why old square kerosene cans or old bad-smelling barrels should not be used for storing it in.—ED.]



J. C. T., Pa.—I do not know what a fair rental for bees should be. They are sometimes kept on shares, if that is what you mean. One party furnishes all the bees and hives for the start, and the other all the labor. At the end of the year the net proceeds are divided equally, each sharing equally in the cost of shipping-cases, packages, and hives, frames, etc., for increase.

J. L., Cal.—Your method of providing ventilation to the hive, and thus preventing clustering out, by means of raising the cover, is quite old. It works satisfactorily, however, in a good many cases; but it is far better to keep the super as warm as possible, and secure the necessary ventilation from the bottom, either through a large entrance or by raising the hive up on four blocks off from the bottom-board.

L. A. S., Quebec.—Yes, you can use large drygoods-boxes as winter-cases over single-walled hives; but the space between the box and the hive should be packed with some loose material such as straw, leaves, or shavings; and then it is essential that it be kept dry. Some use large boxes, and set the hives down in the box, and, after making a passage-way from the entrance of the hive to the outside of the box, packing-material is poured around and on top of the hive; the box-cover is set in place, and on the cover is tacked a large sheet of building-paper.

W. H. K., Cal.—The idea of using the ordinary butter-bowl on the plan of a Hill device is quite old. We have used the ordinary butter-dishes in which grocers put up butter, a good many times. As the dishes are all of a limited size, we have sometimes used two and three of them above the brood-frames. In some instances they have been half filled with hard candy, and inverted right over the brood-frames. As the candy is eaten out it makes a nice clustering-room for the bees. The inverted wooden butter-dish in lieu of the Hill device is certainly a good thing; and if they could be had of a larger size we would discard the Hill device entirely.

L. K., Ill.—You fear that we are not making the cleats to our fences thick enough—that they are too thin to allow the bees to pass from section to section; that, moreover, you could not easily push a dead bee through the space allowed by the thickness of the cleats. I was a little disturbed at first, fearing our wood-workers had been a little careless and made the thickness of the cleats less than $\frac{1}{2}$ of an inch. I went through all the departments, measuring the cleats myself, and found in every instance that 12 would make exactly

2 inches. The foreman of one of our departments has been very particular to have these exactly right.

It is possible that the cleats in the hives sent you were not $\frac{1}{2}$ inch, but I hardly think so; $\frac{1}{2}$ measures in hundredths $16\frac{1}{2}$. From $16\frac{1}{2}$ to 17 one-hundredths is the width of ordinary perforated zinc. When we made up the zinc we endeavored to make it exactly $16\frac{1}{2}$ hundredths, and that has been the size of our zinc for years. The Tinker zinc measures about $\frac{17}{100}$, and, if any thing, is a little larger.

Years ago, when I was testing perforated zinc, I found that, though the zinc was perforated as narrow as $\frac{16}{100}$, the bees would go through very nicely, but when filled with honey it impeded them a trifle. Now, when you bear in mind that the thickness of our cleats is fully as wide as the perforations in the zinc, you will readily see that a bee can go through the space. Bear in mind that $\frac{1}{2}$ of an inch measures $16\frac{1}{2}$ hundredths, and bees can squeeze through $\frac{16}{100}$.

I have not a bit of doubt that it would be difficult for you to push a dead bee through a $\frac{1}{2}$ -inch space, but that would hardly prove that a live bee could not go through that space. A live cat, for instance, to use a homely illustration, can go through a hole that neither you nor I could shove the same animal through when dead. Furthermore, the slats on the fences now drop down a trifle from the top of the section, and this will also have a tendency to widen the space.

With regard to the thickness of the section-holders, it is true the old section-holder will not fit in the new super; but the advantage of the new holder is such that, when we were making such a radical change, we thought we might just as well make it right. The new one is easily removed from the super, and leaves a dead-air space between the super end and the section-holder end.

Thousands of our customers are buying the new supers as their first surplus arrangement, and they get it as the very best. Now, to accommodate those of our old customers who have old-style supers we make and advocate what we call our "S" style of fence. This obviates all the trouble you refer to, and is the style of fence, in my judgment, you had better have, unless, perchance, you were expecting to buy a large lot of new supers, which possibly is not the case. The "S" style of fence is shown on page 13 of the catalog we are sending you, and a little larger view in the January 15th issue of GLEANINGS.

With regard to the shipping-cases, I would state that we are making these for both plain sections and the old-style sections—see p. 23 of catalog for prices on these, and also particulars regarding the new shipping-cases and the number they will hold.

With regard to the looks of the plain section, I would refer you to what L. A. Aspinwall writes in the *Review*, and also what W. D. Soper writes regarding the Aspinwall sections, in Feb. 1st GLEANINGS. I think we shall find no trouble but that they will hold their own in any market against old-style sections.



EIGHT extra pages again this issue.

THE prospects for a crop of honey in California are very poor. Bee-keepers on the coast are looking anxiously for the big rain that has not come. If I understand the situation, if it does not come pretty soon there will be little or no '98 California honey on the market.

IN our Beginners' Question-box (by the way, questions are being thrown into this box by professionals) some questions are asked with regard to the fence, whether or not the cross-cleats are not too thin to permit the bees to pass between the slat and edge of the section into the next super above; and as this has come up of late in our correspondence several times, I have taken pains to cover it fully in our Question-box, which see.

BAD SPELLING AND GRAMMAR.

MR. HUTCHINSON, in the *Review* for January, referring to communications that come from bee-keepers who, though well versed in their business, and able to give valuable facts, and yet hesitate to write because of defective spelling, penmanship, or grammar, says, "Book-learning is good, but it is not every thing." And then he adds: "I hope no one will ever hesitate one moment about writing me because of a lack of book-learning." That is just the way I feel about it. I want my friends to write to me, no matter what their spelling or schooling has been. Although I have on my desk at this very moment more letters than I can answer *promptly*, I hope to catch up soon.

BEEES WINTERING WELL; A PECULIAR WINTER.

BEEES seem to be wintering well from present indications. The winter in Ohio has been greatly varied. On the 1st, 2d, and 3d of this month the mercury ranged from 6 to 10 below zero; then the weather moderated till yesterday, the 10th, when, by way of contrast, we had balmy summer air. Overcoats have been cast off, and windows are open. Prior to our zero weather we had several weeks of damp chilly weather. If you were in our town to-day (Feb. 11th) you would think it ought to be spelled *Mud-dina*. Mrs. R. thinks so, at least when our seven-year-old comes home from school. By the way, if there is any mud to be found, did you ever see a boy who could not find it *without half trying*?

A \$2.00 SECTION-CLEANER.

WE have just got on track of a little machine that can be sold for \$2.00, for cleaning sections, that I *think* will do the work as well and perhaps as rapidly as any machine ever

invented. Years ago, when A. I. R., then familiarly styled "Novice," was at work inventing his all-metal honey-extractor, he utilized the gearing of a paring-machine to gear up his extractor. Well do I remember the days away back in the early '70's when this first all-metal machine was constructed and put in operation, and of "turning the crank" of the paring machine extractor.

But what has all this to do with the \$2.00 sanding-machine or section-cleaner? Only this: There is a big firm putting out a geared-up emery grinder that, to my mind's eye, with a very slight change, will be "shoost right and shoost de ding" as a section-cleaner.

THE REVIEW OUTSTRIPPING ITSELF.

THE *Review* is far outstripping its past record, excellent though it was, in the way of dishing up interesting and valuable facts on the subject of bee-keeping. The editor has called to his aid the camera; and if any one knows how to use that instrument it is Bro. H. The splendid spurts he has made in spite of recent sorrows are marvelous. I almost wonder if he has not even surprised himself. His work has been so good, indeed, that a rival like myself ought to be jealous; but somehow I do not have any inclinations that way at all. *I just feel glad of it.* If Bros. York and Hutchinson give GLEANINGS hard competition, I will work all the harder to keep up with them, and, if I honestly can, I will try to get a little ahead of them.

WILL COMB HONEY BE RIDGED OPPOSITE THE SPACES IN FENCES?

OCCASIONALLY, in our correspondence, fears are expressed that there will be ridges in the comb honey opposite the opening between the slats in the fences. I have investigated this matter very thoroughly, read every thing carefully that has appeared on the subject, questioned very closely bee-keepers who have used the fences, and I have yet to find a case where there is ridged comb honey when the slats are spaced close enough. They should not be any further apart than the width of the perforated zinc, which in round numbers is $\frac{1}{2}$ of an inch. If any thing, the distance should be less rather than more. The Danzy fence that we sold last season had slats spaced $\frac{3}{8}$ of an inch apart, and in some instances I happen to know the comb honey was ridged slightly, opposite the spaces. Two or three have written us that $\frac{1}{4}$ inch is quite close enough—that there will be no ridges; but we prefer to be on the safe side, and make it $\frac{1}{2}$ instead of $\frac{3}{8}$. In the slats that go to make up the fences of our Ideal super, we have spaced them only $\frac{1}{8}$ inch apart; the spaces in the fences of the regular super are $\frac{1}{2}$ as nearly as we can get it.

A COMPLAINT AGAINST A COMMISSION HOUSE.

ON p. 18 of our Jan. 1st issue I had occasion to make favorable mention of two or three commission houses whose names appear in our Honey Column. Among those names especially referred to was that of R. A. Burnett &

Co., of Chicago. One subscriber, seeing that, immediately wrote them after this fashion :

Messrs. R. A. Burnett & Co.—Last fall I had more honey than I could sell here at home, and wrote to you, requesting you to sell it for me, and to learn what your commission was. You answered in this style—that you would not advise me to ship to your overstocked market : that honey was not selling for much, and intimated that you did not want it any way, so I did not send it. How strange, you have sent clear to California for a whole carload to supply your overstocked market ! I suppose almost anything is considered fair dealing for a commission merchant. How funny ! I guess I shall have to jog GLEANINGS a little. If you did not want my honey you could have just said so, plainly, without adding something else, I will not say just what. L. A. S., Ill.

Burnett & Co. forwarded this to us, adding, "See what your kindness has got us into." Knowing something of the deals referred to I took it upon myself to write to Mr. S. direct, and this is what I said :

Mr. L. A. S., Ill.—Your letter to R. A. Burnett & Co. was forwarded to us. The fact of the matter is, R. A. Burnett & Co. handle several thousand pounds of honey per week ; and the deal that we referred to editorially was only one out of many. The very fact that R. A. Burnett & Co. wrote you, advising you not to ship the honey at that time, as the market was overstocked, seems to us is evidence that they were acting in good faith. Such a policy is a most pleasing contrast to the way of some of the commission houses who always invite shipment, adding that the market is good, and that honey will bring a good price ; then when the honey is actually sold they make returns of a half, or even less, of the figure quoted. R. A. Burnett & Co. were honest enough to tell the exact truth ; but right here you will doubtless wonder why they did not take your honey, instead of sending clear off to California for a carload. If they had offered you the price they paid for that California amber—considerably less than 4 cents—you would have dropped them like a hot potato. The fact was, they probably had a demand for just that kind of honey ; and if they reported to you that the market was overstocked, they certainly implied, if they did not say so, that it was for the kind of honey you proposed shipping. If we are correct, R. A. Burnett & Co. handle annually hundreds of tons of honey. Considering the magnitude of their business, it is a marvel to us that they get along with almost no complaint ; and in the light of what we have said, your letter certainly can not be regarded as a complaint.

I sent a copy of the above reply to Burnett & Co., and they returned it, stating that the facts as I have put them were essentially correct.

THE NUMBER OF CELLS OF WORKER COMB TO THE LINEAR INCH ; TELLING LIES AND BELIEVING THEM.

It has been said over and over again in bee-books and bee-journals that there are five cells of worker comb to the inch, so that we have come to believe it. This reminds me of the story of the old Indian medicine-man who had for so many years told his people he could catch rifle-balls in his mouth that he actually came to believe it ; and, accordingly, to prove his assertion, he walked out within rifle-range of the fort, and was shot down. The poor silly fool had told this lie so many times that he *really believed it*. Lately we have been doing some measuring of natural worker combs, and the Indian story above came forcibly to my mind. Is it possible we have told this five-cell yarn so many times that we have come to believe it also ?

Years ago, when Mr. Weed made his honey-comb he so arranged the dies that there would be five cells to the inch ; but somehow or other it was just a trifle under it. Samples of

this comb were sent to us, with the request that we try it ; but the bees would never breed in it or use it. He finally settled down, after many careful measurements, on $\frac{3}{16}$ as the correct width between the parallel sides of a worker-cell. Recently this question came up again in this way : Mr. Weed showed me some brood foundation that he had been making on a set of new dies.

"Why," said I, "I am afraid you have got that a little too large."

I immediately produced my rule and began measuring.

"Why, yes ; don't you see," I said, "there are a little more than $9\frac{1}{2}$ cells to the 2 inches?"

"Yes," said Mr. Weed ; "but you know that the average worker-cell is a trifle larger than $\frac{1}{8}$ inch?"

"No," I said, and turned to Cheshire, and found that even he *assumed* that there were 5 cells to the inch ; but, considering the shape of the cells, he figured there would be actually $28\frac{3}{5}$ to the square inch.*

"Well," said Mr. Weed, "the best way is to go to the bees."

With that he went out into the apiary and hunted up some pieces of natural comb, brought them in, and measured them before my eyes. Five cells measured all the way from $1\frac{1}{8}$ to $1\frac{1}{4}$ inches. In no case could we find exactly 5 cells to the inch, measuring on a line at right angles to the parallel sides.

LARGE ENTRANCES AND DEEP SPACES UNDER BROOD-FRAMES.

In all my trips among bee-keepers I have noticed a tendency toward larger entrances. In the various correspondence that has been coming in from time to time there have been references to the value of freer and better passageways into the hives ; and you may remember that Dr. Miller only recently told us (what he had not done before) that he was in the habit of raising his hives up on four blocks to prevent the bees from clustering out, and to discourage (but not necessarily to prevent) swarming. Mr. Danzenbaker has for two years urged the importance of deep entrances, and he has accordingly had his hives constructed in that way—or, rather, I should say they have reversible bottom-boards which, when used one way, would give the regulation $\frac{3}{8}$ -deep entrance, the full width of the hive, and the other $\frac{7}{8}$. We were not then willing to adopt his bottom-board, for I had a fear that the bees would build their combs down, and make bridges of some sort up to the bottom-bars of the brood-frames. He acknowledged that they did so sometimes, but the cases were rare—not enough to give any annoyance or inconvenience.

All of these things for years have been causing me to think and observe more and more all along these lines. Accordingly, last season, in our own apiary, experiments that I conducted myself personally satisfied me that entrances might be, many times, enlarged with advantage and profit ; and accordingly this

*Cook is the only authority I have run across who says worker-cells are a little more than $\frac{1}{8}$ inch.

season we adopted what had proved to be satisfactory—the Danzenbaker reversible bottom-board for our own hive, affording a $\frac{3}{8}$ -inch entrance one way and $\frac{7}{8}$ the other. So much in favor of the deep entrances, and now for the other side.

G. M. Doolittle and O. P. Miller, in the *Progressive Bee-keeper*, do not agree that there are advantages in the use of a deep entrance for summer use. The latter says when there is more than a bee-space under the frames the bees will build knots of bee-glue up so they can reach them; and while admitting that such entrances will to some extent do away with swarming, it will not do so absolutely. Mr. Doolittle quotes J. L. Hubbard, in *GLEANINGS*, who says that bees, instead of clustering out in front of the hive, will cluster in the deep spaces under the frames; and then he adds that this was his experience—that bees do not cluster out *in front*, simply because they have a more convenient place *inside*; and that the idea that swarming can be overcome by raising the hive up from the bottom-board is a myth. He believes that a $\frac{3}{8}$ space under the brood-frames, with a properly shaded entrance, is all-sufficient, and then winds up by stating that he himself uses a reversible bottom-board; but the deep space is used only for winter, and not for summer.

There, now, friends, I have tried to give you both sides of the whole matter, without fear or prejudice. So far as we are concerned, it does not make the difference of a picayune, because the bottom-board that we have adopted for this season is reversible, and may be used either side up. If one believes, for instance, that a deep space under the frames is a good thing, he can try it to his heart's content. If he does not believe it, then he can use the entrance the other side up.

HONEY IN PLAIN SECTIONS; IS IT ARTISTIC? OBJECTIONS TO THE PLAIN SECTION AND FENCE.

MR. T. F. BINGHAM, for whose opinion as a bee-keeper, inventor, and mechanic I have great respect, is opposed to the plain sections. Besides requiring new separators, he thinks that the merchants and clerks will have to be taught how to handle the honey; that even the shipping-cases will have to be more perfect or the one-piece section abandoned; and then he adds:

There is also a touch of art in the matter. Any one familiar with architecture knows the beauty of projecting edges and borders. Do the advocates of this formless "chunk honey" realize how thin, meager, and lean it will look? Take away the projecting edge from a section of honey, and we see sweetness without ornament.

The last point is best answered by the engraving which we have reproduced from the *Bee-keepers' Review*, and which appeared in the same number with Mr. Bingham's article. If he had seen that photo of Mr. Hutchinson's I do not believe he would have written the paragraph which I have given above, to the effect that honey in the plain sections is a failure from an artistic standpoint. Why! it seems to me the honey in the bottom row of sections, shown on p. 128, is much prettier—

certainly more artistic—than the honey in the top rows. It is not the *section*, with or without its projecting edges, that should command attention, but it is the well-filled and well-sealed *honey*. In a word, it is not what we think looks best, but what sells best. Mr. Aspinwall says the honey in the bottom row brings a higher price.

In answer to the other points, it is true that plain sections do require new separators; but *if* these fences result in having sections better filled out, better sealed—in short, better sellers—the slight additional expense can be well afforded, especially as the fence or cleated separator would last for years.

With regard to merchants and clerks in groceries, where the two kinds of sections have been sold, the plain and old-style, I never heard any complaint on that score, and they have been sold for years.

As to shipping-cases, I think the plain section will in time render it possible to simplify their construction. We know it will take less lumber to make them, and certainly there is right here a saving in pocket to the bee-keeper, for shipping-cases are something one will have to buy every season.

In relation to this same subject, Bro. Leahy, in the *Progressive Bee-keeper*, says:

I do not like the fence separator—don't believe they are durable enough: too many sharp corners to be getting knocked off; and if you should accidentally get them wet—? There is also danger of bees fastening their cappings to the separator cleats. Now, I said I did not like them; but I may after I try them, and I hope they will be a success, as "no bee-way" sections can be sold cheaper, because they take less material and less work to make them. But I do not think, like some, that honey will look any better in them. They will look too much like something with its ears cut off. Neither do I think that the bees will fill them any evenier than they do the old section. Why should they, when the cleat on the separator makes the construction of the separator and section practically the same as heretofore?

As to the glued fence getting wet, of course that is possible; but in all the years that Mr. Miles Morton has used them I do not think he has had any particular trouble on that score; but let it be understood that the right kind of glue should be used; and to get good results, glue must be "cooked" right.

As to the sharp corners being knocked off, that is not so bad in reality as it seems; and as to the other point, whether honey in plain sections looks better than that in old style, I need only refer to the illustration taken from the *Review*.

I believe friends Bingham and Leahy are both open to conviction; and I await with interest the results of their experience the coming season.

In this connection let me say that I desire to have *GLEANINGS* set forth fairly and honestly the arguments against the fence and plain section as well as those for it; and if some good friend, or some fellow not so good a friend of mine as might be, thinks it has not done it, I wish he would write us a regular scorcher of an article. If he is only honest and fair about it I will publish it. Before any criticism can have much weight it should come from one who has actually tried the thing condemned and found it wanting.



We know that we have passed from death unto life because we love the brethren.—I. JOHN 3:14.

Our older readers are well aware, at least to some extent, of the fact that my Christian life has been made joyous by glimpses every now and then of Scripture texts that shine forth all of a sudden with wonderful new meaning. Sometimes they burst out like a bright meteor; and the more I gaze and consider, the more these texts keep unfolding and developing. A few days ago I was thinking that these bright glimpses had not been so frequent of late. I have enjoyed my daily Bible-readings, it is true, perhaps more than I ever did before. And, by the way, our Bible-reading is in the morning after breakfast, when we are all (or ought to be) at our best. We have been refreshed by abundant sleep—that is, as a rule, and Mrs. Root always gives us a good breakfast. Sometimes I tell her, by way of pleasantry, that such a breakfast, when I am traveling, costs 75 cents—that is, a breakfast that satisfies me to that extent. She often replies, "All right; you can give me the 75 cts. while you think of it." Well, after breakfast I am ready for work. I can go through the factory, take up the hard problems, exhort and reprove, if need be, with much better grace than just before dinner. Now, when our powers are at their best who should have the benefit of them? What is the most important thing in life? Jesus answers, "The kingdom of God and his righteousness." Therefore the best time in the world to read the Bible, and, in fact, the most important thing in any day's duties, we owe to God. Perhaps these Bible-readings and morning devotions fit me to catch hold of the wonderful promises when they happen to come before me during the day. Now for our text.

It was at our Saturday-afternoon prayer-meeting that the lady who presided at the piano repeated these wonderful words: "We know that we have passed from death unto life." In one sense we do not know very much about death. That is the one thing in this whole wide universe that even the Bible fails to tell us much about. We know more about life, and we realize that the two are directly opposite. In a Scriptural sense we very soon decide that the word "death" is figurative. The death of the body we know little about from personal experience. But there is something I may call *spiritual* death that we all learn something of sooner or later. The world is full of dead people—people who move about after a fashion, but, compared with real life, I would say real *Christian* life, their lives are but little more than a living death. Do I speak in enigmas? How about the suicides or the suicide mania, if you choose? These people do not appreciate life. Joyous, buoyant, happy life is nothing to them. They are not only willing to throw it away, but they deliberately *plan* to get rid of it. We need not

read the papers, however, to learn about this kind of death. I think I shall not make much of a mistake when I say we *all* know something about it. We become low-spirited and despondent; we have fits of feeling that we do not care for any thing or anybody. If a neighbor jostles us ever so innocently, we feel cross and crabbed about it. If a bright little girl interrupts us with her chatter, we feel cross toward her. Is that true of you, my friends? I really hope it is not. Now, if we let these feelings grow upon us our lives are dead ones, comparatively. What does it all mean? Where do these feelings come from? They come from Satan, the arch fiend, and the enemy of every sort of life. His *mission* is death. If he can not persuade us that God did us an injury when he gave us a human life to live, and persuade us to throw it away as the suicide does, then he will try to make us go through life in that living death I have tried to tell you about. I wish I had skill and eloquence enough to picture a *life* such as God intended we should have and enjoy. When you see a schoolboy, after his lessons are well recited and school is out, you get a picture of life—a glimpse of life to buoyant youth. Huber has a sort of workshop in the basement, where he works with electric apparatus after school and during evenings. It is nicely warmed by my steam-pipes, and brilliantly lighted by a fifty-candle-power incandescent globe. When his plans succeed (and they usually do in the end) he bursts out into a joyous singing. Sometimes his older sisters remonstrate, and ask him to "let up" a little. When some problem he has worked at a good while succeeds nicely, and the new machine comes fully up to his expectations, his singing sometimes threatens to almost raise the roof. It makes me think of the birds on a June morning. They raise their voices in thanksgiving and praise clear up to the very highest notch. They sometimes end abruptly, as if their throats were not sufficient to give utterance to the thanksgiving and joy that fill their little hearts. Well, I have sometimes thought the same of Huber, or, if you choose, any other average schoolboy, bubbling over with mirth, merriment, and joyousness, ready for any sort of joke, or ready for any burdensome task to assist mamma. Huber enjoys excellent health, and he is remarkably stout and strong for a boy of fourteen. He enjoys every thing. Sometimes when he is exceedingly interested in his electric work it is hard to get him to come to supper, and you might think he did not care for supper; but when he comes to the table you would probably change your mind. I have given you a sort of glimpse of life—not alone just mere animal life and spirits, for Huber's happiness is based on the rock Christ Jesus. That is the foundation on which it is all built.*

*You may say that, in the above, I have taken my picture of life from youth. We can not all have youth. True; but we may all have this life, nevertheless. I am fifty-eight years old. Yesterday we had a wedding at our house. The day before the wedding was cold and stormy, and the Weather Bureau predicted a cold wave. It was extremely desirable that the exhaust steam that goes from the factory under my

People often say, "Oh! no wonder *you* are happy. If I were situated as *you* are, I could be happy too," etc. Let me suggest right here that such people often mistake cause for effect. The fact that they are happy and joyous and cheerful and good-natured has been excellent capital to start business with. This Christian hope and Christian life give them success in their undertaking. Once more: Helen Keller is an illustration of about as many misfortunes as are ever heaped upon a single person. She was launched into life deaf, dumb, and blind. But there was a beautiful Christian spirit waiting to be unfolded; and, in spite of all those adverse "environments" (as scientists put it), Helen Keller now stands before the world as a living wonder. Her bright, hopeful, joyous life and never-failing stock of good-natured zeal promise to carry her possibly to the highest pinnacle of education and culture. I hardly need to describe her as she has come before the world at the present time. You see and hear of it in all the papers. Another thing, her life has demonstrated, as nothing ever did before, what may be done by untiring, unselfish Christian teachers. If I am correct, poor Helen did not even have money to pay for the expensive work of breaking down the apparently insurmountable barriers that cut her off from the great storehouse of intelligence and learning that is around the most of us. If *she* succeeded, as she has, shouldn't we who have sight, hearing, and speech, be *ashamed* of ourselves when we complain of Providence or of our fellow-man?

Why are some people happy in the way I have just described, and why are some so ex-

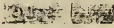
plant-beds across to the house should be in excellent working order on that wedding day. By some mismanagement too much steam had been sent across to the house, and it had burst out of the ground, filling the tiles with mud, and made general havoc. One of my trusty German helpers volunteered to fix it. If I said so, but it was necessary for me to be out in the storm all day long and supervise the work. Along in the middle of the afternoon it seemed utterly impossible that we could get it completed. My willing helper was covered with a mixture of snow and mud (I was not *quite* so bad), and was doing his best. When it looked as if we should have to give it up—that is, unless Providence intervened—I breathed my little prayer. Shortly after, the long pole we were working with unexpectedly passed through the obstruction. I turned on the steam, and it gradually worked its way through. Before the sun went down the job was completed, steam was heating the circle of pipes under the floor, and going out in the frosty air at the top of the highest chimney. I felt glad because we had succeeded. Then I thought of the many times when that little prayer had availed when every thing else seemed hopeless. Then my heart went up in praise and thanksgiving to the great Father. I thanked him that he had given me a life to live, even though it was one of struggles with difficulties. Yes, I thanked him for the difficulties. I thought of my text, "from death unto life." I remembered vividly a portion of my life when I was sinking into spiritual darkness, for I have had a glimpse of "death," but through Christ it has all been changed to "life." I could have shouted for joy as Huber does; and had I been off alone where none but the great Father above would see or hear, I believe I should have done so. Yes, you can be joyous, even if you are old. Some of the happiest and most precious experiences of my life have been since nearing sixty years of age. My labors during the stormy wintry day were not for self, but for the loved ones in our home. At the marriage-service, the minister alluded to the fact that Jesus himself once attended a wedding, and assisted in the festivities.

ceedingly unhappy? What makes this vast difference—this great gulf in this world of ours—between *life* and *death*? Why, bless your heart, dearly beloved (I think this is the first time I ever used this expression, but just now it expresses my meaning better than any thing else), our text explains it all, and makes it clear—"because we love the brethren." Despondency, the blues, ill temper, and all these things, come from *selfishness*. The selfish man or woman will sooner or later *find* this living death. Selfishness *ends* in this spiritual death, and spiritual life *begins* with love for others—with love for humanity. If you are miserable, it is because you are selfish. If you are joyous, it is because you love somebody instead of self—"because we love the brethren." What a wonderful Scripture text that is, any way! I have often thought that Bible texts were beyond any other form of language the world has ever known, in presenting a great amount of truth in a few words. "We know." Yes, indeed, we *do* know. I know that the gospel of Christ Jesus raises us from death unto life as well as I know that a good colony of bees has a queen. When I commenced bee-keeping there were certain people who used to try to argue me out of that theory. They did not comprehend—in fact, they had not a glimpse of their own *awful* stupidity. The idea of wanting a man to stop and talk with them when he was as familiar with the inside of a hive as a schoolboy is with his thumb and dog-eared spelling-book! My good friend, do you say that you are a professing Christian, but that religion has *not* brought you peace and joy? Then it is because your religion is a selfish one. You are loving self and hating somebody else. Do you plead that there are peculiar circumstances? The great Master admonished us to love our enemies, and to *do good* to those who hate us. If you are doing this, working at it day by day, you will certainly be happy. You can not escape it. Let us now see some other precious Scripture texts with the illumination that will shine around them after what I have been saying. At the grave of Lazarus he said to Martha, "I am the resurrection;" "He that believeth on me, though he were dead, yet shall he live again;" and, "Whoso liveth and believeth on me shall never die." Now, while you read these words, interpret the word "life" as I have presented it. In another place he said: "I am come that they might have *life*, and that they might have it more abundantly." Is there any one thing in this world that is to be desired more than this "life" I have been describing? I do not mean alone exuberance of spirits, but a bright, kindly, loving life—a life that not only includes activity, but good will and love. Again, he says, "I am the *bread* of life;" and still again, "I am the *living* bread which came down from heaven; if any man eat of this bread he shall live *for ever*;" and all through that sixth chapter of John you will find the words "life" and "living" used in this sense. Once more: "He that eateth of this bread shall live for ever."*

*Jesus came from heaven to earth on purpose to

I suppose this beautiful text was intended to describe the life of a new convert. When I first stood up in public and accepted Christ before men my heart was so full of love to everybody, friends and enemies, that it seemed overflowing. As I passed out of the church I remember vividly how I loved the horses that stood hitched to the posts, waiting patiently for the meeting to be out. Why, I am afraid you will laugh at me when I tell you I felt like putting my arms around the necks of these faithful servants of mankind, and hugging them, and crying for joy—yes, *joy* and *thanksgiving* to God for having given us the horses with all the rest of his teeming universe, for our comfort, joy, and life.

I had in mind quoting some words about death; but I almost wish I might skip them. We will try a few, however. "The wages of sin is death." Now define the word *death* in the above in the way I have tried to describe it. It is not alone the fact that a man who deliberately and willfully sins shall be finally put to death, but he shall go through years of living death. It is quite the fashion of late for men steeped in crime to "hold up" people. These men are dead—*awfully* dead, you might say—to every good impulse—to every *living* impulse, if you choose. All sense of justice and right is gone. Some time ago I told you about a fellow who knocked down a school-teacher to rob her of her honest earnings. A refined and cultured lady was knocked down by this living brute—oh, no! I mean *dead* brute—that he might appropriate for his own great beastly self *her* honest wages. What do you think of such a kind of life as his must be?

Let us now examine the latter part of our text. "He that loveth not his brother abideth in death." The brutal fellow who robbed the schoolteacher did not love anybody—not even a beautiful and lovable woman who had never harmed him by word or thought, but who, on the contrary, was doing her utmost to prevent happy innocent boys from reaching a living death like unto his own. O dear friends! can you not join us in the work of leading humanity from death to life? The work must be done largely with the children. Correct habits and ways of thinking must be instilled into their little minds. A letter from an old friend has just been put into my hands. As it pictures vividly the transition from death to life, I want to give it right here: 

Friend Root:—Over ten years ago I was requested to take a class of boys in our Sabbath-school. I refused because I felt my inability so much, and they had already had several teachers who had given up, because they could not manage them. But when the next Sabbath came, and they had *no* teacher, the thought came to me, "With God all things are possible;" and with a prayer for help, I went to the superintendent and told him I was ready to take the class. I need not tell you I met with trials and difficulties. Many

bring mankind from death unto life; and yet they rejected his proffered aid, even though he attested his divine commission by the most startling miracles. Once in his earthly mission we are told that "Jesus wept." Yes, the Son of God actually shed tears of grief because men chose death rather than life. They not only rejected the life that he offered so freely, but they hated him, and finally crucified him. May we not also weep when we recognize that mankind still, in this day and age, choose death rather than eternal life?

times I thought I should have to give up; but the more discouraged I got, the harder I prayed; and, no matter what the boys did, I never allowed an impatient word to pass my lips or a frown to pass over my face. Many times I had to omit the lesson almost entirely, while I told them the story of the cross and how much Jesus had done for us; and I tried to impress on their young minds that we ought to do something for him.

Now for the sequel to my rather long story. The second day of this month I had the unspeakable joy of seeing two of my most ill-behaved boys baptized and united with the church; and another one will soon follow. For some time I had seen a change in my dear class; but it seemed as if it were too good to be true. I thought my cup of joy was too full when my own dear boy gave his heart to the Lord. But never experienced the care and anxiety for him that I have had for my class; and I can say with deep joy, "Praise the Lord, for he has heard my prayer."

If you have any discouraged teachers in your Sunday-school, tell them for me to hold fast to the arm of the Lord. Keep on praying. Be gentle, tender, and loving to the little ones under their charge. Let them know their teacher loves them and takes an interest in them, and in due time they will receive their reward if they faint not.

Douglas, Mich., Jan. 18.

MRS. J. REID.



Feb. 7.—It is now 4 o'clock in the afternoon of a beautiful sunny day. I have just been over to the greenhouse to bid good by to the potato-plants. You know that one that is to make such a record—that is, if it does make a record, and I think it will, for the plants are already a foot high, with wonderfully strong foliage, and potatoes already about the size of walnuts. We have commenced laying down the tops of some of them, and are gratified to find buds starting out at the joints. And, by the way, a potato-plant grown under glass, where the flea-beetle and all other insect enemies are kept entirely away from it, is a very pretty sight. The Earliest and Darling strawberries in that sub-irrigated bed through the apiary are already in full bloom, and we are waiting for a day mild enough for the bees to fly to fertilize the blossoms. Under the genial influence of the sun, that is getting higher and higher every day, all of our stuff under glass is beginning to spring into life. Well, little plants, good-by for three weeks. I hope the boys will give you the same loving care they have had while I watched your growth day by day. And now for that wonderful land I have read and thought about almost since childhood, the Bermuda Islands, away off in the Atlantic Ocean.

Feb. 8, 11 o'clock A. M.—The Hudson River, at this season of the year, is really a great study. Not only hundreds but *thousands* of people (with horses and horse-tools to match) are at work at the ice industry; and the immense storehouses that line the river for miles and miles make one almost wonder if the world is big enough to use all they will contain. The greater part of them, I see, are inscribed, "Consolidated Ice Co., No. —," from which I infer some great syndicate controls the output. I am told the snow has

troubled them more this winter than usual; that they have, with much labor, moved it off again and again, and still the ice, a foot or more thick, contains many snowy streaks. It seems they now "stake out claims," as it were, by sticking in the ice rows of bushes or branches of trees. The man who gets his bush fence around a certain tract first, holds the ground (or water) from new comers. I judge they have had very low temperatures, from the great masses of ice on the rocks, where a spring run has come out and frozen. These "baby glaciers" make the rocky scenery look very pretty along the route.

Besides the ice-cutting, the fleets of ice-boats are very interesting; and then the fishing through the ice, and occasional wheel-rides, all in all make the river look like "life." From the number of craft of all sorts and sizes frozen in, I gather that the Hudson must teem with life in summer also, as well as in winter.

The glimpses of the Catskill Mountains are very fine; but the day is almost too misty for mountain views. As we near the city of New York the temperature seems to moderate, and snow and ice are giving way.

Feb. 9, on board steamer *Trinidad*.—When in San Jacinto, Cal., Mrs. Root and I never tired looking at the summit of the San Jacinto Mountain, the majestic peak pushed out away up among and through the clouds. Well, here in New York city, it's lofty *buildings*, made by man, that pierce the very clouds themselves, and reach away *above* them. Actual fact—"honest troot" (as Huber said), from your friend A. I. Root; and when he got up in the morning, and gazed abroad, he had not been in any saloon either. He stayed over night at the Grand Union Hotel; went to bed before 9, and was up before 5 in the morning. I have read of London fogs, but I did not know before that they had fogs in New York. Oh! but they do. You see, the buildings went up (yes, 28 and 30 *storied*), and the clouds came *down*. May be it was in honor of their old friend and admirer. If so, he enjoyed it to the full; and I gazed again and again, and said, "Why, it is really *possible*, and not an illusion, that buildings are actually away up in those dizzy regions of the air? There are "Roots" in the great city as well as back in Ohio. Yes, my companion says that, in some places, "the woods are full of them." Well, Mr. E. N. Root, publisher of the *American Grocer*, told me that these "sky-scrappers" are all built first of steel, with floors of tile, and then covered externally with stone. The steel gives strength, durability, and safety from fire; and here in New York they have "the everlasting rock" for a foundation, so nobody can tell how high they may go yet. With electric elevators it is quite pleasant to live above the fogs (clouds), dust, and noise (and, I hope, *wickedness*) down below. When my neck ached looking up we went into an old church and rested in the very same pew where George Washington used to sit with his family. I am glad this old church has been spared with its ancient cemetery; and I am glad, too, that the "father of his country" left such an example. My dear

friend, when *you* are dead and gone will your children be able to find the pew where you and your household sat regularly every sabbath and listened to gospel teaching?

I have been looking over this great boat as a young bee may be expected to look over the hive when it first goes out for a playspell. I have been most agreeably impressed with the pleasant and courteous manner of all on board, sailors and all. After an "elevated" car conductor snaps at you as if he meant, "Why, a man reared in a cow-stable might know better than to ask a 'fool question' like that," you feel glad when an officer of the boat says, "Oh, yes! go anywhere on the boat, and make yourself perfectly at home."



The Ohio Experiment Station sends us the following in the shape of a newspaper bulletin:

WARNING AGAINST FRAUDS.

A letter just received at the Ohio Agricultural Experiment Station from Miami County states that a man giving the name of Oliver Hawin, and claiming to have been at one time connected with said Station, is traveling through that county and selling material for spraying fruits, foods for poultry, and spray stuff for lice-killing purposes, and claiming that his materials have been experimented with at the Station, and proved successful.

Another communication, from Stark County, states that a man giving the name of Essig is trying to sell in that county a recipe for the prevention of pear blight, which he claims to be indorsed by this Station. This party is said to show letters written on the letter-heads of the Station, but without signature, and claims that the State, through the Station, has presented him with a fine gold watch.

These men are both frauds. The Ohio Agricultural Experiment Station does not indorse or recommend secret compounds or processes of any description whatever; and prosecuting attorneys throughout the State are urged to arrest and prosecute, for obtaining money under false pretenses, any person who may claim to have any such indorsement from the Station.

Please notice that the bulletin says:

The Ohio Agricultural Experiment Station does not indorse or recommend secret compounds or processes of any description whatever.

The newspaper men and others who are defending the practice of selling recipes, etc., would do well to keep the above in mind.

IS SWEET CLOVER A NOXIOUS WEED?

Below is the decision of the Ohio Experiment Station, sent out in the form of a newspaper bulletin:

HOW SHALL WE RANK SWEET CLOVER (MELILOTUS)?

Many portions of Ohio have the roadsides and other sodden or "out of tith" lands occupied by the white sweet-clover plant (*Melilotus alba*, L.). Since it has been regarded as a noxious weed the former Ohio Statute placed it in the same list of proscribed plants with Canada thistle, common thistle, oxeye daisy, wild parsnip, wild carrot, teasel, burdock, and cockle-burs.

Under the operation of this statute, private lands might be entered upon to destroy the melilotus growing for any purpose, as for bee-pastures. The destruction of bee-pastures in this manner actually occurred near Delaware.

Rightly, then, it may be asked, "How shall we rank sweet clover?" To answer this we must consider where sweet clover grows and what is its character.

Sweet clover grows spontaneously along tramped roadsides, even to the wheel-ruts in abandoned roadways, and in tramped or sodden land anywhere. When found in meadow lands it appears not to occur except when the ground has been tramped by stock when wet. It grows by preference in old brick-yards. It may be grown in fields by proper tillage.

The character of sweet clover may be now determined. Viewing it in no other light we thus see that sweet clover grows luxuriantly in places where few or no other plants flourish. But it belongs to the great class of leguminous plants, which are capable, by the aid of other organisms, of fixing atmospheric nitrogen and storing it in the plant-tissues. It belongs with the clovers, and it may thus be used to improve the land upon which it grows, and this appears to be its mission. It occupies lands that have become unfitted for good growth of other forage-plants. Its rank, then, is as a useful plant, capable of increasing fertility of land.

How shall sweet clover be treated?

The character determined, the treatment to be accorded this clover-plant is really settled. The plant is the farmer's friend, to be utilized and not to be outlawed. The plant grows and spreads rapidly. So do red clover, white clover, timothy, blue grass, and other forage-plants; but sweet clover grows where they do not; it indicates lack of condition for the others. Viewed in this way it is to be treated as preparing unfitted lands for other crops.

It may be mown a short time before coming into bloom, and cured for hay. Stock will thrive upon it if confined to it until accustomed to it. The roadsides, if taken when free from dust, may be made almost as profitable as any other area in clover by cutting the sweet clover and curing for hay. If this is regularly attended to while stock is kept from other lands that it invades, sweet clover will be found doing always the good work for which it is adapted.

THE THOROUGHbred POTATO AND SOMETHING ABOUT VARIETIES IN GENERAL.

Mr. A. I. Root :—Sometimes reports of failures may be as useful as reports of unusual success; but they are not so common. I notice you put the price of Thoroughbred potatoes down to the price of others, and assign as a reason that they are so well introduced. Perhaps there is another reason. Judging from my experience with the Thoroughbred this year, they are the most thoroughbred humbug that I have ever tried in the line of potatoes. I planted my patch with Burpee's Early, Beauty of Hebron, and the Thoroughbred, all the same day. They had the same treatment, except that I hoed the Thoroughbreds a little when small, to be sure no weeds hindered their growth. Of the Burpees and Beauty of Hebrons I did not lose a hill, and the crop was a fair one, at least for this year; but the Thoroughbred made slow growth; and when a bug touched a hill the potato gave right up and almost quit trying to grow. Then when I destroyed the bugs and kept them off, the hot sun or something else seemed to kill the tops, so when the potatoes were no bigger than hickorynuts half the hills were dead, and only a few hills survived until digging-time, and the best of them did not yield as well as the Beauty of Hebron. I concluded that, when Terry first tried them with such good results, all conditions must have been very favorable. I expect to try them again, but have little faith in them. My seed was from your stock.

C. M. WHITNEY.

Rootstown, Ohio, Dec. 24, 1897.

Friend W., I am greatly astonished to hear such a report of the Thoroughbred. It is true, it has not done equally well in all localities. In fact, there is no potato I know of, unless it is the Rural New-Yorker, that seems to succeed everywhere. I have noticed and promptly reported that the bugs troubled the Thoroughbreds, seemingly, more than any other potato. But so far as the other points you make are concerned, I have never seen or heard any thing of the kind. On our ground they are not nearly of as good shape as some other potatoes; but those we bought of Maule, and the crop raised for me in Michigan, were the smoothest and finest-shaped potatoes I ever saw. I do not know that we ever had any

complaint before of a poor yield compared with other potatoes. Try them again, by all means. I am inclined to think you will have a different result. I have noticed this frequently, that the result one year with a certain potato may not agree at all with that of the very next season. In regard to novelties, I am beginning to learn that we must go slow about condemning. Since I published the article on page 63, in regard to novelties among small fruits, I have had reports in favor of almost every thing friend Chinn mentioned, unless it is the Mayberry. Nobody succeeds with this, that I know of. In Gregory's new catalog I notice he says the Rocky Mountain cherry from some plants is unfit to eat, while from others it is very good. We have three bearing bushes, and the cherries are all the most disagreeable-tasting fruit I ever got hold of. But some samples that looked very much like them, sent in from the far West as "sand cherries," were very fair eating.

THE OREGON EVERGREEN BLACKBERRY.

Friend A. I. Root :—I want to say to R. Chinn, Jan. 15th GLEANINGS, relative to the Oregon Evergreen blackberry, that, if they are properly cared for, and the climate does not kill the plants, they are a very fine and delicious fruit when ripe, and are wonderful to bear, and will continue for a period of two months with ripe and green fruit and blossoms all the time. The price he paid was outlandish. If any of the readers of GLEANINGS want any plants I can furnish them for 25 cts. each, or three for 50 cts., postage prepaid. I send you by mail a few roots to plant. Put them in a low piece of ground where the water will not stand on them. Give them plenty of mulching—old straw, chips, etc., and lots of water while fruiting, and I think you will find them very fine, large, and sweet. We have had clusters, or bunches, that I think I am safe in saying yielded from eight to ten bushels of fine rich berries.

R. R. RYAN.

Salem, Ore., Jan. 26.

We will take care of the roots, and plant them out as you suggest, friend R. My impression is that they do not usually do as well here in the East as they do with you. Your point is a good one—plenty of water. In fact, all blackberries must have plenty of water to produce luscious fruit. Now, Oregon is the place where it not only rains every day (as somebody has said), but some days it rains *twice*. Very likely the reason why this berry failed in the East is because it lacks its accustomed supply of water; and, by the way, how will it work with blackberries in general to put them on low ground thoroughly underdrained, so no water can stand, and then give them such a mulching as described? That would be a good deal after the plan that T. B. Terry follows. He mulches with straw, and puts it on so heavily as to keep down all weeds, and at the same time hold the moisture for a long time if no rain comes.

GOOD FOR THE WINEBERRY.

Mr. Root :—Having read Mr. R. Chinn's account in GLEANINGS, p. 63, about his wineberries doing so poorly, I thought it right to tell about mine. In the spring of 1896 I bought 12 plants, and in the spring of 1897 3 of them were strong enough to bear, and gave me 6 qts. of very fine large berries, as large as the black-cap raspberry, with very fine flavor. At the present time the stalks are in a very healthy state, and stand 4 or 5 ft. high after being trimmed, and some of the stems are an inch thick. I should not be surprised if I should get 5 or 6 bushels this year. They come up to the description in the catalogs in every respect;

and as for hardness, we have had from 8 to 11 inches of ice, and the stalks are perfectly healthy to the very tips. I am delighted with them. OLIVER NEIZEL.
Reading, Pa., Jan. 26.

THE EVERGREEN BLACKBERRY, ETC.

I have grown the Oregon Evergreen blackberry for a good many years, and I should not like to do without them. Our native blackberry is the same as the Dewberry of York State, and is a better berry than the Evergreen; but here is the trouble with the native—they are at their best while I am busy with the hay crop, so I do not get many to can. The Evergreen comes in later, so I have enough and some to sell each year, as they bear well each year. For preserves I prefer the Evergreen. With me they are a hardy, rank grower. I have a frame extending 14 ft. each way from the plant, north and south, and clip the vine at that length, and train three or four vines on each frame. Vines of 1897 gave me fruit in 1898, and are cut away in the fall, and the frame is ready for 1899. I have been giving away sets to any who came for them. I shall have a number this spring. I have 58 qts. of fruit left yet (all for a bachelor).

I have kept bees for 16 years. My largest yield was 150 lbs. comb honey, Mother Cotton hive and native blacks Italianized. I increased to 40; results, lots of swarms and little honey. I bought sulphur last fall and killed down to 8.

The weather is like spring. Striped fence-squirrels are out. Grouse are feeding on the ground. Snails are crawling outdoors; snow gone.

Goble, Ore., Jan. 31.

G. W. MAKINSTER.

THE AMERICAN COFFEE-BERRY; HOW IT ANSWERS FOR COFFEE, ETC.

I planted three ten-cent packages of the American coffee-berry last spring. The ground was cold and wet, so the planting was not done until the first of June. It kept so cold and wet that only about two-thirds of the beans came up. The crop matured early in September, before we had any killing frost. When all was gathered I had just half a peck of shelled beans—color a light cream. The pods grow very thick on the main stem and on branches, but do not branch very much. They bear pods very close to the ground, and set generally two beans in a pod, sometimes three. I counted one stalk that had 214 pods, and another 225. Thus far I am satisfied that they are prolific, and would mature in this climate.

Would people generally like them for coffee, and would they sell for a drink? I first browned and ground enough to make three pots of coffee, using one drawing for two meals. At the end of that time, for a week I missed that drink, when I sat down to a meal, more than I ever did any tea or coffee before in my life. I consider it as pleasant and agreeable a drink as any thing I ever tried, and prefer it to any real coffee. But how would others like it, whose interest extended only as far as taste and cost are concerned? I was anxious to find out, so I gave a small drawing, ready ground, to five different families. In the five families, about 25 persons drank of it. All but two said it was a pleasant and agreeable drink; those two did not like the taste of it, but they admitted they were cranks about their coffee, as they bought only the best.

Brooklyn, Ohio.

X.

The above is a very fair report, and we should be glad to hear from some of the other readers of GLEANINGS in regard to it. The coffee-berry, you will notice, is very much earlier than any of the larger varieties of the soja beans. The strain of seed we are sending out now will, I think, produce two crops in a season here in Ohio. It will grow on the poorest kind of ground, and will assuredly be worth as much as any of the clovers for plowing under. Its value for seed for stock has not yet been determined; but the beans themselves are so exceedingly rich in nitrogen, I am sure it must prove valuable for many purposes. It is a common expression that certain kinds of soil are "too poor to grow white beans;" but I believe this coffee-berry, and probably other varieties of the soja bean,

would grow with considerable luxuriance where even the proverbial white bean would fail to make a stand. Who knows but this new coffee-berry that is now quite extensively introduced has not been the means of bringing down the price of real coffee? If it should take the place of real coffee largely, a still better result would be attained.

TOP ONION-SETS.

Some time last spring—I think it was in May—a man brought me a bushel of onions, firm and hard, without a sprout visible in the whole bushel, at a time when old onions were all so sprouted as to be comparatively worthless. He wanted a dollar for the bushel. I took them at once, and then asked him to tell me how he managed to keep them thus late without any sprouting, and whether he sorted out the sprouted ones before he brought them.

"Why, I did not sort them at all, and I did not manage at all. I just keep them where they won't freeze. These onions never sprout, that I know of. I have had them a good many years, and they keep just this way."

"But, my good friend, where did you get the seed? what is the name of it?"

"Didn't have any seed. These onions grow from sets—don't know any name but 'onions.' I brought you several bushels one spring, and you wouldn't have them because you said you did not know what they were."

Now I will tell you what I did. I just planted every onion in that bushel; and although the ground was poor, and the weather was not favorable, they gave us about two bushels of nice firm hard onion-sets that have not at this date, Feb. 4, showed any signs of sprouting or becoming soft. In fact, I feel just as if I should like to go into the business of growing this kind of onion and onion-sets. Perhaps they would not yield as large as some of the kinds that grow from black seed; but I tell you it is worth something to me to have onions that will keep, and onion sets that will keep.

By the way, about fifty years ago my mother and I made quite a little money by growing top onion-sets; and, as nearly as I can remember, they looked like these. There never was any trouble in keeping them at all, and we could sell any amount of them at a good price at any grocery. It is just a yellow, rather flat onion that always grows from top sets. A great many of the sets are no larger than peas, so that a bushel would make a tremendous lot of onions. I have looked over the seed catalogs, but I do not see any thing mentioned that fully describes this onion. Our readers will remember that we disseminated a quantity of *white*-top onion-sets three or four years ago. Did anybody ever succeed with them? We have been planting these onions and onion-sets almost ever since, but for some reason or other we never succeed in getting any nice onions, or nice sets either, of any account; but this top onion I have now, judging from one season's experience, and from the way in which the large onions looked when I bought them, will, I think, prove to be a good thing. Who will tell me more about it?

THE UNITED STATES WEATHER BUREAU AND HICKS.

Since what was said on page 26, one person has ordered his journal stopped, saying that "Hicks is more accurate than the Weather Bureau." I wonder if I can not make this matter a little plainer. Just before the cold wave (of zero weather for three nights in succession), we had a week of weather almost without frost, and that right in the month of January. The Weather Bureau gave prompt and correct notice two days ahead, right along. Just before the severe cold spell the following warning appeared in all the papers:

Shippers of perishable goods should take notice of the approaching cold in making shipments in any direction during the next day or two.

Now, who can compute the saving that shippers all over the United States have made by stopping potatoes and other perishable produce in accordance with this two days' notice? On the night of Feb. 2d and morning of the 3d, the mercury went down to 10 below zero.

Once more: A few days ago the following telegram came to our office from the Weather Bureau:

Jan. 28, 10 o'clock.—Threatening weather and light snow to-night; fair Saturday; warmer Saturday morning; colder by night.

Please notice the complexity of this prediction. Well, the above was exactly according to prediction. They hit it on temperature, both up and down, about as well as an observer could have described the weather *afterward*. Now, then, how about Hicks, who, as our subscriber claims, has been more accurate than the Weather Bureau? Did Hicks ever notify the nation of a cold wave so it could stop shipments, etc.? Did he ever say, in effect, "In the middle of January there will be a long warm spell; in some localities a week or more when it will not even freeze nights (in the Northern States) but on the 1st, 2d, and 3d of February the weather will be near zero most of the time"? Now, do not be in a hurry, friends. I am very well aware that Hicks often says, "Look out for something very unusual about this time;" but he does not say what the "unusual" will be; therefore his readers can interpret it as an unseasonable and warm spell or the opposite, or it may be a terrific windstorm, or a great depth of snow or a flood. Any of these would fill the bill about the great things that he predicts will happen about such a time. Still worse, and the saddest and most disgraceful part of the whole affair, is that he claims he gets his information from that old heathen institution known as *astrology*, and actually gives pictures of the planets, and poses before the people who will listen to his hypocrisy as a scientific man and astronomer; and this man claims at the same time to be a *Christian*! Of course, his statements in regard to the positions of the planets, etc., are true. This information he probably gets from accurate scientific sources; but from this he rehearses the same rigmarole that the gipsy fortune-tellers do—that the "conjunction of certain planets" will be favorable to "marrying a rich man," or something of that sort, except that Hicks applies it to the *weather*

instead of a silly girl's fortune. If the positions of the planets influenced the weather, our United States Weather Bureau would certainly have published the fact years ago. Their careful scientific records show constantly that even the moon itself—our nearest planet—has no effect on the charge of the weather whatever, although, of course, the moon does produce the tides. It does not need very much intelligence to sift out *sense* from *non-sense*, or, from what is worse still, hypocrisy and *fraud*.

ELECTRIC BELTS, ETC.

The following newspaper clipping was mailed to us by one of our subscribers:

Here's a pointer from an exchange in case the electric-belt fakir visits you. An examination was made of some electric belts sold by a street fakir. It was found that, beneath a strip of gauze, was a layer of dry mustard. When the wearer perspires a little the mustard becomes moistened and causes a burning sensation, and the deluded victim believes a current of electricity is passing through him. The mustard probably is just as good; but when one buys mustard he ought to know it.

Well, this thing is certainly ahead of the Electropoise, for there is some sense—or, if you choose, *sensation*—attached to it. While speaking of electric belts it is gratifying to see that the thing is *almost* played out, any way. We notice advertisements reading something like this: "Just think of it! A \$25 electric belt for only \$3.98." No doubt the same kind of belt has been sold for \$25. My own brother paid an enormous price for one as much as 40 years ago. After he had worn it a while he was Yankee enough to pull it to pieces, and it was not even as good as the mustard plaster so far as any benefit was concerned. It was made of alternate links of zinc and copper covered with silk; and where they are made in quantity, in a factory, one might get rich by putting up the whole thing for 25 cents. In the first place, the thing used according to directions does not generate electricity—at least, not enough to be felt. Secondly, if it did, no physician would think of recommending it for every ailment, as the vendors do. Thirdly, even if a \$25 belt is sold for \$3.98, there is even then \$3.50 profit in the transaction. Any one of good judgment should be able to satisfy himself of *all* the above points by pulling one of the things to pieces.

THE GRANDCHILDREN AND THEIR WHEELS.

You see, we had an order for a carload of crates for crating juvenile bicycles; and it seemed no more than fair, after having got an order for a whole carload, to take some of their goods in return. So we purchased a small-sized bicycle for each of the grandchildren, Howard and Leland. Now, these wheels are no toy. They are built just as well as big ones. Of course, the boys could not do very much with them in the winter time; but when a warm sunshiny day came, then there was fun out on the stone flagging in front of our residences and the factory. The flagging is four feet wide, and as the boys (aged re-

spectively six and almost seven) "wabbled" considerably; the only way they could keep on the pavement was to have their respective papas run behind them and guide their erring—not footsteps—but wabbles. Once in a while when it was going down hill they would go a rod or two *without* any gentle touch to keep them on the path. Sometimes one of them would run off the walk and tumble in the grass along at either side, and then there would be shouts of laughter. The boys laughed, their papas laughed, and grandpa, who was looking on, perhaps laughed loudest of all. And I gathered a moral right there. These boys need a father's touch once in a while to keep them in bounds. If that touch is given with love and care as they progress, it is needed less and less frequently; and by and by they will go alone, even if papa is not around. Yes, they will not only go alone, but they will help others and teach others to keep in the straight and narrow path, swerving neither to the right nor to the left, and avoiding the pitfalls on either hand. May God bless the juveniles, and also the papas who are administering the gentle touch of the guiding hand that is needed a great many times before they are able to go alone. Even if their papas do get out of breath, may they have grace not to be weary in well doing; and may the grandpapas also have grace to give a little help and encouragement out of the larger and longer experience that they have gathered through life; and may they always go along lovingly together.

A friend sends the following clipping taken from some newspaper:

A genius of fillomen has invented a machine that will make 400 cigarettes in a minute. It is suggested that he should next invent a machine that will make two coffins per minute, as 200 cigarettes are sufficient to kill an able-bodied boy.

Special Notices by A. I. Root.

POTATOES AS PREMIUMS.

Quite a few are making inquiries in regard to potatoes as premiums for subscriptions. While it is bad for you, friends, it is a little lucky for us that potatoes are worth too much, at least at present, to be given away, especially where we make a subscriber a present of a whole barrel of potatoes as we did in the spring of 1896 and '97. We will, however, do this much: Any person who sends us \$1.00 for GLEANINGS one year, without asking for any other premium, may have 25 cents' worth of potatoes according to the list in last issue. But let us have it distinctly understood that, if wanted by mail, you must pay all postage, at the rate of 10 cents per pound, for postage and packing. If you can order them sent by express or freight with other goods, all right; but we can not very well give postage-stamps away. The margin of profit on them is very narrow. "See?"

BURPEE'S FORDHOOK FANCY TOMATO.

About a year ago Mr. E. C. Green, formerly of the Ohio Experiment Station, sent me some tomato seeds to be planted in the greenhouse. He said it was the result of some of his experiments in making crosses. As soon as the plants were up they showed by their foliage that they were different from any other tomato. For the use of our greenhouse he gave us about half a dozen plants. They are not only remarkable-looking, but the plant is almost as handsome as some of the ornamental foliage plants. In fact, it will

be a very pretty thing for a flower-garden or a lawn. The bright green is very marked, and the foliage is so unlike a tomato that, when I saw a row of them trained to a single stem at friend Green's home, I actually did not know what he had told me they were the *new* tomatoes. Here is what Burpee says in regard to it in his 1898 catalog:

The fruit is of large size, very solid, with but few seeds, of a rich ruby-red color and delicious flavor. The handsome, smooth fruits are borne in clusters of three and four, at EVERY OTHER JOINT; and, as the joints are close together, the plant presents a very crowded appearance. Small plants—pruned to a single stem only, two and a half feet high, have produced four to five pounds of fruit. The plant resembles that of a potato—in fact, it might be called The Potato-leaf Bush Tomato. It is so compact and erect in growth that no stakes are required. Even the side branches grow upright, and hence more plants can be set to a given area than of any other variety, making it easily the most PRODUCTIVE GOOD TOMATO IN CULTIVATION. The Fordhook Fancy will become immensely popular, both in the home garden and for shipping to market. The large, solid fruits are always smooth and handsome, while the skin is not easily broken. In fine quality, compact, bushy growth, and immense productiveness, it far surpasses the DWARF CHAMPION and DWARF ARISTOCRAT, and will prove valuable also for forcing.

I may remark, by the way, that friend Green has sold all his right and title to Burpee. While we have not tested the plant enough to fully indorse all Burpee claims, I think it will pay our readers to give the new tomato a trial, as an ornamental plant if nothing more, and we therefore make the following announcement:

Any one who pays for GLEANINGS in advance, or who has already paid up in advance, may have a packet of ten seeds of the new tomato for the asking. They are not for sale at any price this year, as we do not want to conflict with friend Burpee. We simply give them to our subscribers.



THICK-TOP FRAMES.

We have at Taylor, Texas, 500 thick-top frames, sent there by mistake. Including the freight there these would be worth \$9.00. We offer them f. o. b. at Taylor for \$8.00.

"FACTS ABOUT BEES."

New edition of Mr. Danzenbaker's booklet, "Facts about Bees," has just come from the press, and will be sent free from this office to all who apply with 2 cts. to pay postage. This booklet embodies all of Mr. D.'s latest ideas, including the Danzy section, double cleated separators, etc. The little work as a whole has more of real value in it than many of the high-priced books.

MAPLE SUGAR AND SYRUP.

We have already received a small lot of new sugar, and within a week shall probably have plenty of sugar and syrup. We have on hand now about 30 gallons choice '97 syrup at 85c per gal., or in 10-gal. lots at 80c; also some '97 maple sugar, No. 2 grade, at 6c per lb.; No. 3 grade 5c per lb. We can probably furnish new syrup, first run, at 90c per gal.; 10-gal. lots at 85c; new sugar at 9, 8, and 7c respectively, for first, second, and third grades; $\frac{1}{2}$ c per lb. less in 50-lb. lots; 1c less in barrel lots of about 200 lbs.

BUSINESS AT THIS DATE.

We have increased our working time, and are shipping three to four full carloads a week besides the numerous small orders; yet we are losing ground, and shall be compelled very soon to put on a double turn of men, and run night and day. We have orders booked, not yet shipped, for nine carloads of goods for export besides seven carloads for different points in this country. We are filling less than carload orders with reasonable promptness, and carload orders as fast as we can get them out. So early in the season a little delay is not so serious as it will be later. We hope before the end of March to be closer up on orders, ready to move the goods off promptly.

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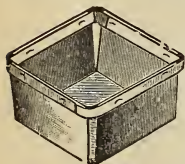
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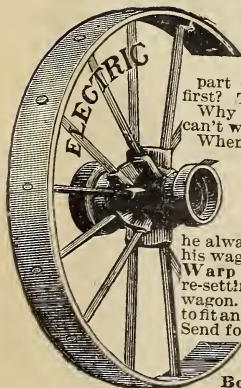
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